

Exhibit 1

00013492

III

MTBE COMMITTEE

1830 Connecticut Avenue, NW, Suite 300
Washington, DC 20036, Ph. 202-659-0060
Executive Director, George S. Dominguez



February 27, 1987

Dr. Beth Anderson
TS-778 Room 100 NE Mall
Test Rules Development Branch
Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Re: MTBE Committee Statement on MTBE (OPTS - 41023)

Dear Dr. Anderson:

As you know from our earlier conversations, the MTBE Committee has recently been formed and I am pleased to submit the attached statement on behalf of the Committee relative to the Federal Register announcement of the ITC's intention to designate MTBE for priority testing consideration under the Toxic Substances Control Act (51 Federal Register 41417, Nov. 14, 1986). The submission is also intended to be responsive to discussions held at the December 16th Focus meeting.

In addition to providing you with this written statement, we would also like to confirm that we will be making a verbal presentation to you and your staff on March 5th at a meeting already scheduled for 10:00 a.m. on that day.

Sincerely,

George S. Dominguez

George S. Dominguez
Executive Director

GSD/vls

attachments

Affiliated with the Oxygenated Fuels Association

EXHIBIT

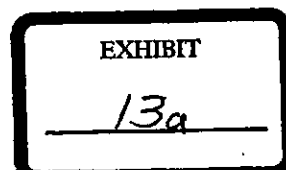
13A

TX 048892

STATEMENT OF MTBE COMMITTEE
SUBMITTED TO EPA

FEBRUARY 27TH, 1987

EX EPA 00094
CONFIDENTIAL - FOR USE IN LITIGATION SOLELY



INTRODUCTION

By way of introduction, the MTBE Committee was recently organized to provide a forum in which to address the environmental, health safety legislative and regulatory issues concerning methyl tert-butyl ether (MTBE) of importance to the public and the producers and users of MTBE. The Committee is dedicated to working cooperatively with the government and the public and to be a source of information to MTBE producers, users, the government and the public. In specific the Committee will:

- Address environmental issues relating to MTBE by (i) collecting data from member companies and other sources and (ii) sponsoring programs to develop data unavailable from other sources.
- Address federal and state regulatory issues relating to MTBE by (i) providing technical data to appropriate regulatory agencies and legislative bodies (ii) meeting with appropriate governmental officials to develop acceptable solutions.
- Make available to interested parties and the general public technical and scientific information relating to the use of MTBE in fuel.
- Provide a forum for the exchange of appropriate information between producers and users of MTBE.

Organization of The Statement

The MTBE statement consists of three sections:

- Section I - Health Effects Review Summary
- Section II - Environmental Exposure
- Section III - Societal Impact of MTBE Utilization

In preparing this statement, extensive efforts were undertaken by the MTBE Committee and its members to obtain all available published and unpublished health effects studies. In this regard, we would specifically like to call the Agency's attention to the fact that we have been able to locate several unpublished toxicology studies that were apparently unavailable to the ITC in its review of MTBE toxicology data. A summary of the results of these studies is provided in Section I. The full text of the studies is provided as an Appendix to this section. It is important at this point to note that these studies did not indicate any evidence that MTBE poses an unreasonable risk to human health. These studies as well as those which were reviewed by the ITC are in our opinion, sufficient to indicate that from an acute and subchronic toxicological viewpoint, MTBE does not represent such a risk. Even repeated exposures to rodents or monkeys to levels of 2,000 ppm or greater did not induce any hematological, neural tissue, or other organ effects which indicated a chemical induced toxicity. We believe these conclusions are fully supported in the health effects review summary provided.

-2-

We believe that the information contained in Section II on Environmental Exposure supports the conclusion that gasoline vapor emissions at service stations and terminals have been measured and have been found to be below levels which would adverse health effects.

In addition, Section II provides information on the positive effects on air quality, as well as an analysis of the potential effect of MTBE as a ground water contaminant in the event of an accidental spill or leakage. We believe that the information provided supports the conclusion that MTBE, from the health effect perspective, does not represent a hazard.

Section III provides information on the societal impact of the use of MTBE as a high octane component for gasoline. The use of MTBE in motor fuels has a number of advantages relative to air quality improvement, all of which are summarized in Section III. In this context if the production capacity of MTBE were to be discouraged, the environment would, in our opinion be significantly effected and octane costs increase substantially

Statutory Criteria

To issue a Section 4 test rule for MTBE EPA must make all of the following findings:

- (1)(A) MTBE may pose an "unreasonable risk" of harm to health or the environment; or
- (B) that MTBE is produced in "substantial quantity" and may reasonably be anticipated to result in "substantial environmental release" or "significant or substantial human exposure"; and
- (2) that insufficient data exists about the health or environmental effects of MTBE to reasonably determine or predict the impact on health or the environment of manufacturing, processing, distribution, use and disposal, and
- (3) that testing is needed to develop such data.

In addition, to making the above findings, EPA must consider the potential economic impact of the tests required under the rule.

Conclusion

The following discussion establishes that there is no evidence that MTBE poses any significant risk of harm to health or the environment, that human exposure to MTBE and release of MTBE to the environment is negligible, that sufficient data exists to reasonably determine or predict that manufacture, processing, distribution, use and disposal of MTBE will not have an adverse effect on health or the environment, and that testing is therefore not needed to develop such data. Furthermore, issuance of a test rule requiring long term chronic testing will have a significant adverse environmental impact because it will inhibit additional investment in MTBE plants

Sincerely,

George S. Dominguez

George S. Dominguez
Executive Director

GSD/vls

attachments

Legal Retention at MSXSOC

From: Stanley CC (Curtis) at MSXWHWTC
Sent: Tuesday, November 03, 1998 12:21 AM
To: Pedley JF (Joanna) at MSXWHWTC; Benton F R [Newcos]
Cc: Mcarragher S (Steve) at OPC
Subject: RE: MTBE IN GROUNDWATER - ISSUES BRIEF

I am out of the office and will return on Thursday. Based on a quick review of the attached material, there are several points that need to be made.

- 1) Very small releases of MTBE (even small overfills seeping into cracks in the pavement) have the potential to adversely impact groundwater
- 2) Based on engineering reliability studies, it is likely that a high percentage of sites using MTBE, have a soil and/or groundwater problem. This problem is not just the result of leaking tanks, lines, fills, and dispensers, but is also a result of certain operations.
- 3) Due to MTBE's high solubility and low attenuation rates, it has the potential to migrate large distances relative to benzene (see attached paper)
- 4) Those sites which are located over potable groundwater are potentially very high risk sites.
- 5) Odor and taste will drive the cleanup goals rather than risk. We are currently looking at cleanup goals between 5-15ppb.
- 6) Once in groundwater, MTBE is extremely difficult to remediate. It's Henry's Law coefficient is very low which means that MTBE prefers to stay in the aqueous phase rather than being sorbed or stripped out of water. Air sparging will be relatively ineffective. We are currently evaluating biological and oxidation remediation techniques.
- 7) A simple risk assessment for all sites (like we are in the process of developing) will greatly help focus future resources.

My professional opinion is that MTBE and similar oxygenates should not be used at all in areas where groundwater is a potential drinking water supply. If it is used, engineering design and site operations (including active subsurface monitoring) should be carefully developed to minimize the potential for a release.

Curt



ngwa MTBE2
6-3-98.ppt

Original Message

From: Pedley JF (Joanna) at MSXWHWTC
Sent: Monday, November 02, 1998 6:24 PM
To: Benton F R [Newcos]
Cc: Stanley CC (Curtis) at MSXWHWTC; Mcarragher S (Steve) at OPC
Subject: FW: MTBE IN GROUNDWATER - ISSUES BRIEF



Ron -

As discussed earlier today, grateful for your comments (US perspective additions ?) on the attached. Also by copy to Curtis - please could you review also.

nb: Steve had some sections highlighted in red in his original. I have made a few first pass suggested mods which are in blue with strikeouts of the original in black. Please feel free to change my mods.

From: Joanna Pedley
Equilon Enterprises LLC

Manager Fuels Technology
Westhollow Technology Center - M2603
Tel: 281 544 7795
Fax: 281 544 8585
email: jfpedley@shellus.com
jfpedley@equilon.com

THIS COMMUNICATION PER APPLICABLE AGREEMENTS BETWEEN OUR RESPECTIVE COMPANIES

From: McArragher, Steve SIPC-OBMF/51
Sent: Tuesday, October 27, 1998 8:30 AM
To: Pedley, Joanna SHLOIL-; Lee, Rob SHLOIL-
Cc: Wynn-Williams, William SIPC-OBX
Subject: MTBE IN GROUNDWATER - ISSUES BRIEF

Joanna, Rob, as discussed with Rob last week, we are starting to worry about the MTBE contamination issue outside

EQ 033388

Legal Retention at MSXSOC

From: Stanley CC (Curtis) at MSXWHWTC
Sent: Wednesday, September 24, 1997 11:06 AM
To: Dove JC (John) at WPOIC11; Haynes KG (Karen) at WPOCHI1; Pugnale PJ (Pete) at WPOANI1; Boschetto HB (Brad) at WPOANI1; Spinelle JS (John) at WPOIC12
Cc: Krewinghaus AB (Bruce) at MSXWHWTC; Roush VW (Wayne) at MSXSOC
Subject: MTBE Occurrence in Groundwater

John,

The following data is less than 1 week old and was obtained through my counterparts in Chevron and Mobil. Neither of these companies intends to release this information and it was generated for internal use. I think that they are trying to estimate how MTBE is going to affect their remedial costs in the future. Based on our experience in the east and California, I think we have a similar problem.

I attended the National Trust Fund Managers conference this summer. The biggest issue for most of the state program managers is MTBE (oxygenates). These state managers are worried that MTBE problems may bankrupt their funds (not to mention the oil companies).

As you know, Wayne Roush has been named as Shell's Issue Manager for MTBE. The MTBE meeting scheduled for October 2nd, should help all of us gain a better understanding of the issues surrounding MTBE and other oxygenates. We should then be able to develop a strategy to deal with this problem.

Finally, it is important to realize that MTBE is not just a Retail problem, but also affects Transportation, Refining, and Chemical. This is an issue that management in these organizations needs to understand better.

If you have any questions, please let me know.



MTBE Occurrence in
Groundwater...

Curtis C. Stanley
Shell Development Company
Environmental Technology Directorate
Westhollow Technology Center
(phone) 281-544-7675 (fax) 281-544-7543
E-Mail: ccstanley@shellus.com
(Pursuant to any Service Agreement(s), or Agreement(s) for R&D Services, as applicable)

MTBE Occurrence in Groundwater

Mobil Oil Study

Personal Communications with Mark Malander (09/24/97)

The following statistics are based on an internal study for Mobil Oil which was conducted by Mark Malander. These results are not going to be published by Mobil. Concentrations are in mg/l (ppm).

		ND	< 0.1	0.1 - 1.0	1.0 - 10	>10
Wisconsin	16 sites		20%	50%		30%
California	?	32%	20%	15%	17%	17%
Florida	All Companies	14%	37%	20%	22%	7%
New Jersey	96 sites	6%	8%	22%	26%	37%

Several factors should be considered when evaluating this data, and are provided below:

- 1) MTBE has been in use in NJ since 1979
- 2) Florida does not require oxy-fuels, so concentrations of MTBE in gasoline are relatively low
- 3) California has only been using oxy-fuels several years.

- The 16 Wisconsin sites were acquired from Shell.

Chevron Study

The statistics provided below are based on a study which was conducted by Tim Buschek, et. al. from Chevron. This study was in a paper titled "Occurrence and Behavior of MTBE in Groundwater", and was to have been presented at the 1997 API/NGWA Conf., but was pulled out last week. The following statistics represent Operating Sites.

Area/State	No. of Sites	MTBE Detected (%)	MTBE > 1 mg/l (%)
Northern California	182	83	46
Southern California	69	84	49
Texas	89	93	66
Maryland	41	98	81
Florida	21	76	19
Totals	402	86	52

The Chevron study is partially based on a factor where MTBE > 1 mg/l. While this concentration may be convenient from an analytical standpoint, the EPA is currently recommending a cleanup goal of 0.07 mg/l. Odor and taste concerns may push this concentration to 0.02 mg/l or less.

EQ 033659

April 19, 1985

APR 25 1985

TO: Mr. J. M. M. Mixer

FROM: B. J. Mickelson *B. J. Mickelson*

SUBJECT: Introduction of Methyl Tertiary Butyl Ether (MTBE) in the Texas Eastern Transmission, Jacksonville, Florida; Charleston, South Carolina; and Wilmington, North Carolina Areas

As stated in previous memos dated February 22, 1985, and August 23, 1984, (attached) the inclusion of MTBE in Exxon gasoline is of concern as an incremental environmental risk for four reasons.

- MTBE has a much higher aqueous solubility than other soluble gasoline components, such as Benzene;
- MTBE has a lower taste and odor threshold than other soluble gasoline components;
- MTBE has a higher differential transport rate than other soluble gasoline components;
- MTBE unlike Benzene, Toluene and Xylene cannot be removed from solution to below detectable levels by carbon adsorption and must be treated by more complicated and expensive air stripping columns.

As a result we recommend that from an environmental risk point of view MTBE not be considered as an additive to Exxon gasolines on a blanket basis throughout the United States.

However, on an area-by-area basis the risks to the environment differ. As stated previously, in the Texas Pipeline system, we have experienced no known drinking water contamination incidents. This favorable incident record is a result of geohydrologic factors such as depth to potable aquifers, overlying confining layers, and cultural factors such as public utility districts supplying drinking water limiting the number of wells which could be impacted by a spill. Therefore, we saw no overriding reason to and did not recommend against the addition of MTBE in the Texas Pipeline system.

The mitigating factors which reduce the risks associated with the addition of MTBE in the Texas Pipeline System do not exist in other areas of the country where we market. From an environmental risk point of view we recommend against introducing MTBE into the Texas Eastern Transmission system and the South East Atlantic Coast.

As we have previously discussed we cannot estimate incremental cost associated with the introduction of MTBE without a contamination impact study on the proposed markets for possible MTBE usage. Real Estate and Engineering, Environmental Engineering does not have sufficient technical manpower in-house to complete a nationwide risk assessment by year-end 1985.

EX EnFI 0005
CONFIDENTIAL - FOR USE IN LITIGATION SOLELY

August 23, 1984

TO: V. M. Dugan
FROM: B. J. Mickelson
SUBJECT: MTBE Contamination of Ground Water

The following is in response to your August 8, 1984, memo to Mr. S. D. Curran requesting information on additional potential ground water contamination problems that are associated with the use of MTBE in gasoline.

First MTBE, when dissolved in ground water, will migrate farther than BTX before soil attenuation processes stop the MTBE migration.

For example, a town well in Thurmont, Maryland was contaminated by IPE, a similar ether compound, even though the soluble BTX plume migration was such that the well was not contaminated by these components. Well replacement costs are expected to exceed \$500k in this case.

Another example is at Jacksonville, Maryland where the leading edge of the Gulf MTBE plume has not been controlled and migrated over twice the distance of the Exxon BTX plume migration, which has been halted. We are now facing onerous Federal EPA compliance actions which will add costs to this multimillion dollar incident.

Second, MTBE has lower odor and taste thresholds than BTX. Therefore low, non-hazardous, analytically non-detectable levels of MTBE continue to be a source of odor and taste complaints in affected drinking water. This low threshold will extend the clean up and testing time to close out a well contamination incident.

Third, MTBE cannot be removed by carbon adsorption. Small household carbon filtration units are used by Exxon to treat private drinking supplies contaminated by BTX. This option would not provide adequate treatment for water supplies additionally contaminated by MTBE. Air stripping or a combination of air stripping and carbon adsorption would be required to clean up water contaminated by BTX and MTBE. Attachment A compares initial and operating costs associated with various treatment options.

In summary, there appear to be three reasons MTBE could add to ground water incident costs and adverse public exposure.

-2-

Based on higher mobility and taste/odor characteristics of MTBE, Exxon's experiences with contaminations in Maryland and our knowledge of Shell's experience with MTBE contamination incidents, the number of well contamination incidents is estimated to increase three times following the widespread introduction of MTBE into Exxon gasoline. With 62 ground water clean up activities underway at an average annual cost of \$3M, this represents an increase of some 120 or \$6M to a total of 180 and \$9M annual cost.

Finally, the closing-out of these incidents would take longer and treatment costs would be higher by a factor of 5 (Attachment A). Therefore, we estimate that by extending close-out times the 180 incidents would double to over 300. Shell Oil currently has over 300 ongoing contamination incidents which resulted at some 4,000 retail facilities, versus 62 incidents at Exxon's 7,000 retail facilities. The estimated additional costs involved would result in annual leakier incident costs exceeding \$20M.

There is a fourth, and probably the most significant, consideration. Any increase in potential ground water contamination will also increase risk exposure to major incidents. Since 1978, Exxon has been exposed to three major ground water incidents (East Meadow, L.I.; Canob Park, R.I.; Jacksonville, MD). While the most recent cases are unsettled, the cost of these incidents can be as high as \$7M each based on East Meadow. Therefore, if the trend of one \$7M suit every two years is increased commensurate with the number of ongoing outstanding incidents (i.e., current 62 to over 300) then annual major incident costs would increase from \$3.5M to some \$18M.

Taking the above four factors into consideration, it would appear that widespread use of MTBE has the potential of increasing our ongoing contamination incidents from a current of 62 to over 300 and costs from \$6.5M (\$3M and \$3.5M) to over \$40M (\$+20M and \$+18M).

Please call me if you have any questions regarding the concerns outlined above.

- BJM:jm

c - S. D. Curran
J. S. Dick
R. R. Eaton

*0499g

Barbara J. Mickelson

EX EnFI 00049
CONFIDENTIAL - FOR USE IN LITIGATION SOLELY

Page 1	Page 3
<p>1 IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA</p> <p>2 IN AND FOR THE COUNTY OF SAN FRANCISCO</p> <p>3 --o0o--</p> <p>4 SOUTH TAHOE PUBLIC UTILITY)</p> <p>5 DISTRICT,)</p> <p>6 Plaintiff,)</p> <p>7 vs) No. 999128</p> <p>8 ATLANTIC RICHFIELD COMPANY) THIS TRANSCRIPT</p> <p>9 ("ARCO"); et al.,) CONTAINS</p> <p>10) CONFIDENTIAL</p> <p>11 Defendants.) MATERIALS</p> <p>12)</p> <p>13)</p> <p>14)</p> <p>15)</p> <p>16)</p> <p>17)</p> <p>18)</p> <p>19)</p> <p>20)</p> <p>21)</p> <p>22)</p> <p>23)</p> <p>24)</p> <p>25)</p> <p>COMMUNITIES FOR A BETTER)</p> <p>ENVIRONMENT, a California)</p> <p>Non-Profit Corporation, on)</p> <p>behalf of the General Public,)</p> <p>Plaintiff,)</p> <p>vs) No. 997013</p> <p>UNOCAL CORPORATION, a Delaware)</p> <p>corporation, et al.,)</p> <p>Defendants.)</p> <p>FRIDAY, OCTOBER 27, 2000</p> <p>10:03 A.M.</p> <p>DEPOSITION OF</p> <p>ALFRED J. JESSEL</p> <p>CATHLEEN SLOCUM, CSR</p> <p>License No. 2822</p>	<p>1 I N D E X</p> <p>2 EXAMINATION Page</p> <p>3 By Mr. Sher 2</p> <p>4 Reporter's Certificate 173</p> <p>5 --o0o--</p> <p>6 E X H I B I T S</p> <p>7 Plaintiff's Page</p> <p>8 1 Notice of Taking Deposition of 45</p> <p>9 Chevron USA, Inc., with Production</p> <p>10 of Documents and Videotaping</p> <p>11 2 Notice of Taking Deposition of 66</p> <p>12 Chevron USA, Inc., on Designated</p> <p>13 Issues with Production of Documents</p> <p>14 and Videotaping</p> <p>15 3 Memorandum dtd May 9, 1985, Use of 69</p> <p>16 MTBE as a Blending Component in</p> <p>17 Chevron Motor Gasoline</p> <p>18 4 Letter to W.R. Leek from R.J. Hinds 74</p> <p>19 dtd 5/23/86</p> <p>20 5 Memorandum dtd June 11, 1986, 76</p> <p>21 Marketing Environmental Concerns</p> <p>22 Regarding the Use of MTBE in MOGAS</p> <p>23 Confidential</p> <p>24 6 Slide Presentation, Removing MTBE 82</p> <p>25 from Gasoline, March 26, 1999</p> <p>EPA Blue Ribbon Panel</p> <p>Confidential</p> <p>7 Memorandum dtd September 4, 1986, 87</p> <p>Status Report - MTBE</p> <p>Confidential</p> <p>8 Memorandum dtd December 30, 1986, 98</p> <p>MTBE</p>
<p>1 COUNSEL</p> <p>2 For the Plaintiff:</p> <p>3 MILLER, SHER & SAWYER</p> <p>4 BY: VICTOR M. SHER, ESQ.</p> <p>5 100 Howe Avenue, Suite S-120</p> <p>6 Sacramento, California 95825-8201</p> <p>7 For the Defendants Exxon Corporation and Chevron</p> <p>8 USA, Inc.:</p> <p>9 McCUTCHEN, DOYLE, BROWN & ENERSEN, LLP</p> <p>10 BY: COLLEEN P. DOYLE, ESQ.</p> <p>11 355 South Grand Avenue, Suite 4400</p> <p>12 Los Angeles, California 90071</p> <p>13 For the Defendant Chevron USA, Inc.:</p> <p>14 CHEVRON PRODUCTS COMPANY</p> <p>15 BY: ANNE M. PAYNE, Senior Counsel</p> <p>16 Law Department</p> <p>17 6001 Bollinger Canyon Road</p> <p>18 San Ramon, California 94583</p> <p>19 For the Defendants Shell Oil Company, Shell Oil</p> <p>20 Products Company, Equilon Enterprises, LLC, and</p> <p>21 Texaco:</p> <p>22 SEDGWICK, DETERT, MORAN & ARNOLD</p> <p>23 BY: KI YUN HWANG, ESQ.</p> <p>24 One Embarcadero Center, Sixteenth Floor</p> <p>25 San Francisco, California 94111</p>	<p>1 E X H I B I T S</p> <p>2 Plaintiff's Page</p> <p>3 9 Handwritten notes dtd 1/4/88, 12/22; 101</p> <p>4 Letter dtd December 15, 1967 to J.W.</p> <p>5 Scott</p> <p>6 Confidential</p> <p>7 10 Memorandum dtd February 25, 1991, 105</p> <p>8 Clean Air Act Requirements In-Situ</p> <p>9 MTBE Plant Projects</p> <p>10 11 Memorandum dtd March 25, 1991, Clean 108</p> <p>12 Air Act Response CO Non-Attainment</p> <p>13 Areas A-Team Presentation 3/29/91</p> <p>14 12 Memorandum dtd August 12, 1991, 109</p> <p>15 TIP Letter #237, MTBE Effects</p> <p>16 Confidential</p> <p>17 13 Memorandum dtd September 17, 1991, 111</p> <p>18 Update for Reformulated Gasoline</p> <p>19 14 Memorandum dtd October 17, 1991, 113</p> <p>20 Oxygenate Supplies for Northwest</p> <p>21 Region CO Non-Attainment Blending</p> <p>22 15 Notes for Chevron Presentation- 119</p> <p>23 Supply/Economic Issues, dtd</p> <p>24 August 13, 1992</p> <p>25 16 Ethanol in California's Cleaner 151</p> <p>Burning Gasoline (CBG)</p> <p>17 Letter dtd December 8, 1997 to 155</p> <p>18 Honorable Tom Hayden from Jack</p> <p>19 Coffey</p> <p>20 18 Memo to RFG Task Force Members 159</p> <p>21 dtd November 10, 1995 with</p> <p>22 Opposition Claims & Responses</p> <p>23 19 Memorandum dtd April 27, 1995, 163</p> <p>24 MTBE in Groundwater Issue</p> <p>25 Confidential</p>

<p style="text-align: right;">Page 85</p> <p>1 THE WITNESS: That is what the document says.</p> <p>2 MR. SHER: Q To your knowledge are those</p> <p>3 characteristics of MTBE listed in this June 1986 document</p> <p>4 consistent with Chevron's current knowledge of the</p> <p>5 behavior of MTBE with respect to groundwater?</p> <p>6 MS. DOYLE: Objection. Calls for speculation.</p> <p>7 Lacks foundation. He hasn't been offered as a Chevron</p> <p>8 witness on these issues.</p> <p>9 THE WITNESS: Would you restate the question?</p> <p>10 MR. SHER: Let's have it read back.</p> <p>11 (Thereupon the record was read back.)</p> <p>12 MS. DOYLE: Same objection. He's not been</p> <p>13 offered as the Chevron person most knowledgeable on these</p> <p>14 issues.</p> <p>15 THE WITNESS: I'm not an expert on any one of</p> <p>16 these issues specifically.</p> <p>17 MR. SHER: Q Is that your full answer?</p> <p>18 A No. But that is my personal understanding that</p> <p>19 these are generally true as I've learned from other</p> <p>20 experts and other sources of information. Again, it's</p> <p>21 not my area of expertise.</p> <p>22 Q In your view do these characteristics of MTBE render</p> <p>23 MTBE not suitable as a gasoline blend stock?</p> <p>24 MS. DOYLE: Objection. Calls for speculation.</p> <p>25 Lacks foundation.</p>	<p style="text-align: right;">Page 87</p> <p>1 Q Did you identify MTBE as significantly soluble in</p> <p>2 water during that presentation?</p> <p>3 A I don't recall specifically.</p> <p>4 Q Did you say that MTBE does not naturally degrade in</p> <p>5 the environment to the Blue Ribbon Panel?</p> <p>6 A I don't recall specifically.</p> <p>7 Q Did you indicate to the Blue Ribbon Panel that MTBE</p> <p>8 has a low odor and taste threshold in water?</p> <p>9 A Again, I don't recall specifically.</p> <p>10 Q Did you tell the Blue Ribbon Panel that because of</p> <p>11 these characteristics MTBE was probably not suitable as a</p> <p>12 gasoline blend stock?</p> <p>13 A I don't recall specifically.</p> <p>14 Q Okay. Do you recall generally?</p> <p>15 A I recall speaking to the Blue Ribbon Panel and in</p> <p>16 general I did touch on this issue. But specific</p> <p>17 statements I'd have to be reminded of.</p> <p>18 (Thereupon a document was marked by the</p> <p>19 reporter as Exhibit 6 for identification.)</p> <p>20 MR. SHER: Q Handing you a copy of what we've</p> <p>21 marked as Exhibit 6. This is Bates stamped CH1AJ 001521.</p> <p>22 Bears a date down in the one corner of March 24, 1999.</p> <p>23 It's called Removing MTBE From Gasoline, and it has your</p> <p>24 name on the cover; is that right?</p> <p>25 A That is my name.</p>
<p style="text-align: right;">Page 86</p> <p>1 THE WITNESS: I'm not the expert. What you're</p> <p>2 asking me to do is weigh these issues against the air</p> <p>3 quality issues that I do know something about and I'm not</p> <p>4 competent to do that.</p> <p>5 MR. SHER: Q Isn't that what you told the Blue</p> <p>6 Ribbon Panel in March of 1999?</p> <p>7 MS. DOYLE: Objection. Would you like to show</p> <p>8 him -- you have a specific document that you're referring</p> <p>9 to?</p> <p>10 MR. SHER: May I have an answer to my question?</p> <p>11 MS. DOYLE: Vague and ambiguous. Calls for</p> <p>12 speculation.</p> <p>13 THE WITNESS: I'd need to see a specific</p> <p>14 statement and have a specific question.</p> <p>15 MR. SHER: Q Do you have any recollection of</p> <p>16 making a presentation to the EPA Blue Ribbon Panel in</p> <p>17 1989?</p> <p>18 A Yes, I do.</p> <p>19 Q As part of that do you have any recollection of</p> <p>20 stating that MTBE constitutes an environmental concern?</p> <p>21 A I have on occasion said that MTBE constitutes an</p> <p>22 environmental concern.</p> <p>23 Q Did you say it to the Blue Ribbon Panel to the best</p> <p>24 of your recollection?</p> <p>25 A I don't recall specifically.</p>	<p style="text-align: right;">Page 88</p> <p>1 Q On behalf of Chevron Products Company, correct?</p> <p>2 A That's what, the way it reads.</p> <p>3 Q <u>And then it says, "EPA Blue Ribbon Panel, March 26,</u></p> <p>4 <u>1999." Is this a presentation that you gave to the EPA</u></p> <p>5 <u>Blue Ribbon Panel on March 26th, 1999?</u></p> <p>6 A <u>May I take a moment to review?</u></p> <p>7 Q <u>Sure.</u></p> <p>8 A <u>What was your question again?</u></p> <p>9 <u>MR. SHER: Let's have it read back.</u></p> <p>10 <u>(Thereupon the record was read back.)</u></p> <p>11 <u>THE WITNESS: It appears to be.</u></p> <p>12 <u>MR. SHER: Q And were you making that</u></p> <p>13 <u>presentation on behalf of Chevron Products Company?</u></p> <p>14 A <u>Yes, I was.</u></p> <p>15 Q If you look at page 3, which is Bates stamped in</p> <p>16 that series ending in 1523 -- are you there?</p> <p>17 A Yes. Yes, I am.</p> <p>18 Q -- the heading says, "What Constitutes an</p> <p>19 Environmental Concern."</p> <p>20 A Yes.</p> <p>21 Q Do you see that?</p> <p>22 A That's what it says.</p> <p>23 Q And what did you mean by that?</p> <p>24 A What I meant by that is what will our customers,</p> <p>25 people who buy from Chevron, consider an environmental</p>

Page 89

1 concern about the products that they're purchasing.
 2 Q And then you say, "One view: If a component is
 3 significantly soluble in water, doesn't naturally degrade
 4 in the environment, has low odor and taste thresholds in
 5 water, then it is probably not suitable as a gasoline
 6 blend stock;" is that correct?
 7 A That's what it says.
 8 Q What did you mean by the reference to one view?
 9 A That was the, the one view I was referring to there
 10 is the view of the general public as being represented by
 11 newspaper articles, customer complaints and other such
 12 public discussions about what is acceptable in gasoline.
 13 Q This was not Chevron Products Company's view?
 14 A I was representing Chevron Products Company. I put
 15 this together on my own. It was my view attempting to
 16 echo what we were hearing from the public about this
 17 topic.
 18 Q Were you expressing your own opinion on these issues
 19 in making this statement?
 20 A No.
 21 Q You were simply --
 22 A Well, let me rephrase. This, the conclusion,
 23 probably not suitable given the one view, then I was
 24 expressing my opinion under the portion marked then.
 25 Q I'm not sure I understand this. Let me ask you a

Page 90

1 follow-up question. Is it your view if a component is
 2 significantly soluble in water, doesn't naturally degrade
 3 in the environment, has low odor and taste thresholds in
 4 water, that it is probably not suitable as a gasoline
 5 blend stock?
 6 A That's correct.
 7 Q To your knowledge is that view shared by Chevron
 8 Products Company?
 9 MS. DOYLE: Objection. Calls for speculation.
 10 Lacks foundation. You can answer if you know.
 11 THE WITNESS: What do you mean by "Chevron
 12 Products Company"?
 13 MR. SHER: Q Does Chevron Products Company have
 14 a -- let me back up and ask the question this way. Are
 15 you, you've told us that you are involved in -- strike
 16 that. Let me start over again.
 17 In connection with your work on policy advocacy
 18 that you told us about this morning, have you become
 19 familiar with Chevron's policy positions on a variety of
 20 issues related to MTBE and oxygenates?
 21 MS. DOYLE: Objection. Vague and ambiguous.
 22 Overbroad.
 23 THE WITNESS: I'll answer it in that I'm
 24 familiar with Chevron's positions on these issues in
 25 general.

Page 91

1 MR. SHER: Q In the context of that
 2 familiarity, are you aware of a position of Chevron with
 3 respect to the suitability of components that have the
 4 characteristics of significant solubility in water, lack
 5 of natural degradation in the environment and low odor
 6 and taste thresholds in water?
 7 MS. DOYLE: Objection. Vague and ambiguous.
 8 Calls for speculation. Lacks foundation.
 9 THE WITNESS: It is very unlikely that Chevron
 10 would consider putting anything into gasoline which has
 11 these characteristics based on the public reaction that
 12 we got to having MTBE in our gasoline.
 13 MR. SHER: Q Is it fair to say having reviewed
 14 Exhibits 4 and 5 that at least by 1986 Chevron knew that
 15 MTBE had these characteristics?
 16 A Four and -- is that the one I just --
 17 MS. DOYLE: Objection. The document speaks for
 18 itself. Calls for speculation.
 19 THE WITNESS: I don't know that I'm qualified to
 20 speak on what constitutes knowing. I'm really out of my
 21 depth.
 22 MR. SHER: Q Is there some explanation that
 23 you have for Chevron believing that a compound having
 24 these characteristics would be not suitable as a gasoline
 25 blend stock in 1999 whereas at earlier before say 1990 it

Page 92

1 would be suitable as a gasoline blend stock?
 2 MS. DOYLE: Objection. Calls for speculation.
 3 Lacks foundation.
 4 THE WITNESS: The only factor that I know of
 5 from my experience and for what I have experience and
 6 expertise is the intense public reaction that we got to
 7 reports of MTBE in groundwater. And that that in my mind
 8 is the difference between the early eighties and the
 9 current environment.
 10 MR. SHER: Q Do you think that the, the
 11 presence of MTBE in groundwater came as a surprise to
 12 Chevron?
 13 MS. DOYLE: Objection. Calls for speculation.
 14 Lacks foundation.
 15 THE WITNESS: The only way I can answer that is
 16 it came as a surprise to me.
 17 (Thereupon a document was marked by the
 18 reporter as Exhibit 7 for identification.)
 19 MR. SHER: Q Dr. Jessel, before we leave
 20 Exhibit 6, I'm going to hand you number seven or you have
 21 number seven, but before we leave number six, were you in
 22 your presentation to the Blue Ribbon Panel in March of
 23 '99 making any recommendation on behalf of Chevron
 24 Products Company to the Blue Ribbon Panel about whether
 25 or not MTBE should be removed from gasoline?

CONFIDENTIAL: This document is subject to the September 21, 1999 Stipulated Protective Order entered by the San Francisco Superior Court, Case No. 999128.

Removing MTBE From Gasoline

Al Jessel

Chevron Products Company

EPA Blue Ribbon Panel

March 26, 1999

EXHIBIT

10-47-0205
Jessel

CH1AJ 001521

3/24/1999

Chevron Products Company

What Constitutes an Environmental Concern?

One View:

- If a component
 - Is significantly soluble in water
 - Doesn't naturally degrade in the environment
 - Has low odor and taste thresholds in water

Then

- It is probably not suitable as a gasoline blend stock
MTBE, other ethers, and heavier alcohols fit this definition

CONFIDENTIAL: This document is subject to the September 21, 1999 Stipulated Protective Order entered by the San Francisco Superior Court, Case No. 999128.

CH11AJ 001523

MEMORANDUM

San Francisco, CA
August 12, 1991

TIP Letter # 237
MTBE Effects

REGIONAL MANAGERS:

As you all know Methyl-tertiary-butyl-ether (MTBE) is widely used in gasoline throughout our distribution network. The oxygenated fuel requirements in the recent reauthorization of the federal Clean Air Act will only increase the use of MTBE and its concentration in our gasolines. In light of this, we thought it prudent to pass on some facts concerning the potential effects, both environmental and budgetary, of a spill or leak of gasoline containing MTBE into the groundwater. This information may help you to prioritize sites due for UST upgrades (ie. spill containment, release detection, etc.).

Typically, benzene is the component that determines the extent of a dissolved hydrocarbon plume and is the component with the most stringent cleanup standards. While benzene concentrations in the groundwater are the driving force for most cleanups, benzene is relatively easy to remove by carbon adsorption or air stripping and it will naturally biodegrade in most subsurface environments.

MTBE on the other hand is a different situation. The solubility of benzene in water is 1,800 parts per million (ppm), while the solubility of MTBE in water is 43,000 ppm! The dissolved plume that results from a leak into groundwater is directly related to the solubility in water of the chemical. The higher the solubility the larger the plume and the faster it will migrate.

When MTBE gets into the water then the trouble really starts. Removal of a compound by air stripping is governed by the Henry's Law constant; the constant for MTBE is 1/7 that of benzene; the biodegradation of MTBE is 1/5 that of benzene; the carbon adsorption of MTBE is 1/5 that of benzene. MTBE has two additional characteristics that only exacerbate the problem. Dissolved benzene transport in water is retarded due to adsorption; MTBE transport is not significantly slowed since it does not adsorb to soil as well. Water containing over 1,500 ppm of MTBE is flammable and can lead to explosive vapors. Attached you will find a summary of MTBE properties provided by R.J. Hinds of CRTIC.

CONFIDENTIAL: This document is subject to the
September 21, 1999 Stipulated Protective Order entered
in San Francisco Superior Court, Case No. 999128.

CHEV 09564

As you can see, a groundwater cleanup where MTBE is present has the potential to be 2-3 times as expensive as our present groundwater cleanups. The resulting plume will be much larger and the removal of MTBE is very difficult at best.

Our highest degree of concern right now is with service stations without spill containment manholes that are, or will be, served by racks that are blending MTBE. The combination of MTBE gasoline being delivered, the lack of spill containment manholes, and shallow groundwater could be tremendously expensive for us in the long run. As they say, an ounce of prevention is worth a pound of cure, and in this case prevention is certainly prudent.

J.L. KOERBER

JK

DJL/

cc. A.M. Caccamo
D.N. Perkins
J.L. Pease
R.J. Kinds
Compliance Specialists
TIP Coordinators
Env. Engineering Supervisors
H.W. Rigg

CONFIDENTIAL: This document is subject to the
September 21, 1999 Stipulated Protective Order entered
in the San Francisco Superior Court, Case No. 999128.

CHEV 09565



October 17, 1997

John D. Dunlap, III
Chair, Air Resources Board
2020 L Street, 4th Floor
Sacramento, CA 95812

Dear Mr. Dunlap:

In light of the continuing controversy surrounding MTBE, Tosco would like to communicate its concerns directly to you. We believe that responsible action should be taken sooner rather than later to allow the reduced use or elimination of MTBE in gasoline. Our call to action is based on growing evidence of the potential for extensive MTBE contamination that could occur and the resulting liability the state, and ultimately our citizens, could face to restore California drinking water supplies.

Tosco, as you know, is one of the largest refiners and marketers of gasoline in California. It is now apparent that the issue of potential MTBE contamination of the state's water was not adequately considered prior to implementation of the federal and state reformulated gasoline regulations. Consequently, we find ourselves in a "catch 22" since the current regulatory framework effectively leaves us no choice but to use MTBE to meet clean fuel standards.

A good first step, which I understand you support, would be passage of H.R. 630 (Bilbray) currently pending in the U.S. House of Representatives. This bill, which would provide some of the flexibility refiners need to begin shifting away from MTBE, already has the support of most of the California Congressional delegation.

There may be other regulatory changes which could be made to allow greater use of other oxygenates (such as ethanol) or the use of no oxygenates. Based on the recently released Auto/Oil study, it appears that oxygenates will not be needed in the long run to achieve reduced emissions. It seems eminently logical, given the obvious water quality problems associated with MTBE, to begin immediately to move toward complete oxygenate flexibility.

We believe the timetable for action set up by the recently passed legislation too slow and that the state should take decisive action immediately to begin to move away from MTBE. Tosco is committed to working cooperatively with ARB, other agencies, the Legislature and industry to resolve this problem promptly, without endangering the state's clean air or clean water programs, and without negatively affecting the supply or cost of gasoline in California.

Sincerely,

Duane B. Bordvick

DBB/saa

cc: Peter M. Rooney
Acting Secretary
California Environmental Protection Agency
565 Capitol Mall, Suite 625
Sacramento, CA 95814

John Caffrey
Chairman
State Water Resources Control Board
901 P Street
Sacramento, CA 95812-0100



Environmental and
External Affairs

Tosco Corporation
2300 Clayton Road
Suite 230
Concord, CA 94520-2100
(510) 822-4060 Telephone
(510) 822-4015 Fax

STATEMENT
OF
TOSCO CORPORATION
BEFORE THE
ASSEMBLY COMMITTEE ON NATURAL RESOURCES

November 21, 1997
Santa Monica, California

My name is Duane Bordvick. I am Vice President of Environmental and External Affairs for Tosco Corporation. I am pleased to have this opportunity to testify before this committee.

A great deal has been written and said lately about Tosco's position on oxygenates in general, and MTBE in particular. I would like to clarify today what Tosco has said, what Tosco supports, and what Tosco does not support.

On October 17, 1997, I wrote a letter to John Dunlap, Chairman of the California Air Resources Board, expressing Tosco's views on MTBE and urging action to allow greater oxygenate flexibility. Why did I write the letter? Some background may help explain.

In our attempts within Tosco to understand the complexities of ongoing discussions, controversies, legislation, and technical studies concerning MTBE, one aspect seemed clear to us, the potential threat to water resources. Without much dispute, MTBE has physical characteristics that cause it to get into water more easily, and stay longer. Those here in Santa Monica know that better than most. Another unfortunate characteristic of MTBE, which also seems undisputed, is that it has a very low odor and taste threshold, perhaps as low as 15 parts per billion (ppb). Scientists may spend years debating the potential health impact of MTBE but it seems to us the ball game is over if your drinking water smells or tastes bad. Finally, we cannot ignore the extent of public concern over MTBE, the growing perception that MTBE is undesirable, and the realization that perception often becomes reality.



TOS/T 10995

Assembly Committee on Natural Resources Hearing
November 21, 1997
Page 2

In consideration of these and other factors, we made what could be characterized as a management or policy decision that long term use of MTBE was not in the best interests of our company or our shareholders. The potential threat to California's drinking water resources and the associated liability we would collectively face for restoring water resources is too great.

Unfortunately, current regulations and laws leave us no choice but to use MTBE. Therefore our letter expressing our concern and calling for action was written to start the process of clearing the way for us, or anyone else, to reduce the use of MTBE. Our target for regulatory change in the letter, as well as our focus today, is passage of the federal bill, H.R. 630, sponsored by Congressman Brian Bilbray of San Diego. The Bilbray bill would eliminate the requirement for Federal Reformulated Gasoline in California with its rigid oxygenate requirement. In turn, this allows the more flexible oxygenate requirement in the California Cleaner Burning Gasoline program to be in effect throughout the state, providing the same, if not improved, air quality benefits.

It is also important that I clarify Tosco's position regarding these California Air Resources Board Gasoline regulations.

- Tosco supports the State of California Air Resources Board Phase 2 Cleaner Burning Gasoline program. We are pleased with and proud of the effect it has had on the state's air quality over the last year and a half, and we do not support attempts to roll back the emissions reductions associated with that program.
- Tosco specifically supports the type of oxygenate flexibility built into the CARB program which permits use of oxygenates at various levels. This allows us to make CARB Phase 2 gasoline in the most cost-effective and efficient manner which depends on each company's specific refinery capabilities.

Assembly Committee on Natural Resources Hearing
November 21, 1997
Page 3

Unfortunately, we are not able to use the flexibility of the CARB program because of the overlapping federal program which dictates a specific level of oxygenate use. Passage of the Bilbray bill would fix that. If the Bilbray bill passes, we believe that with some time, with some use of ethanol, and with some modest investment for changes to our refinery processes, Tosco would be able to remove MTBE from our gasoline. There appears to be a common misconception that MTBE and Cleaner Burning Gasoline are one and the same. This is false. While MTBE has played an important role, California Cleaner Burning Gasoline can provide all the same benefits without MTBE.

Now let me say a few words about what Tosco does not support.

- Tosco does not support an immediate ban on MTBE use. We realize that this could endanger the air quality benefits of the program in addition to possibly affecting supplies of California gasoline. However, we do believe something—namely passage of the Bilbray bill—should be done right away to allow us the flexibility to voluntarily alter our MTBE use.

We do not pretend to have all of the answers. Some of the questions will be answered by the studies going on. However, we are very uncomfortable with relying solely on long term studies. I hope that we will work together to aggressively support the Bilbray bill. The Bilbray bill holds the greatest promise of near term oxygenate flexibility and freedom, on a company-by-company basis, to decide oxygenate use in the next year. In addition we have committed to work closely with the Air Resources Board and other state agencies to explore any other possible solutions.

I would be happy to answer any questions you may have.

Exhibit 2



**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK**

In Re: Methyl Tertiary Butyl Ether ("MTBE")

Products Liability Litigation

Master File C.A. No. 1:00-1898

MDL No. 1358 (SAS)

M21-88

Case No. 07 Civ. 10470 (SAS)

This document relates to:

COMMONWEALTH OF PUERTO RICO, ET AL.,
PLAINTIFFS

VS.

SHELL OIL CO., ET AL.,
DEFENDANTS

Expert Report of Bruce F. Burke

**Nexant, Inc.
44 South Broadway
White Plains, New York 10601**

January 22, 2014

Signature

Date

the impact of new regulations to promote the use of renewable fuels in the United States market. A copy of my résumé is attached to this Expert Report as Exhibit A.

5. I have been deposed and served as an Expert Witness in the case of “City of New York v. Amarada Hess Corp., et al.”

6. I have been deposed and served as an Expert Witness in the case of “State of New Hampshire v. Hess Corporation, et al.”

7. This written report is submitted in compliance with the disclosure requirements set forth in Federal Rule of Civil Procedure (FRCP) 26(a)(2)(B), subject to the right to supplement the report in accordance with FRCP 26(e). Nexant is being compensated for my work in this case at the rate of \$600 per hour. Part of the work for this report was performed by others working at my direction. No part of Nexant’s compensation depends on the content of this report. I reserve the right to amend this report, and to update my opinions, in the event that I become aware of additional relevant information.

SCOPE OF OPINIONS

8. I have been asked to provide an opinion as to whether gasoline manufactured by the Chevron Phillips Chemical Puerto Rico Core LLC (“CORE”) facility, located in Guayama on the south coast of Puerto Rico, contained MTBE or TBA between June 1982 and May of 2000 and, if so, the MTBE or TBA content of such gasoline.

9. The opinions and conclusions expressed below are based on my knowledge of the refinery business, gasoline blending, and fuel additives, in particular, which I have acquired during my thirty plus year career as a chemical engineer specializing in the petroleum refining and petrochemical industries. My opinions in this case reflect information provided by CORE during discovery in the form of data and deposition testimony, my experience in gasoline manufacture and blending, and limited quantitative analysis. I identify in the text or footnotes of this Report the specific sources of information I have relied upon.

CONCLUSIONS

10. Based on a review of the facts and my over 30 years of experience, I conclude that MTBE was regularly and continuously used in the manufacture of gasoline by the Chevron Phillips Chemical Puerto Rico Core LLC (“CORE”) facility, located in Guayama on the south coast of Puerto Rico, between June 1982 and May 2000. In addition, CORE used TBA in the manufacture of gasoline from October to December 1982. Individual batch records produced in discovery by CORE demonstrate that every single batch of finished gasoline manufactured by CORE from January 27, 1997 until May 29, 2000 contained MTBE. In 1997, 1998, 1999, and 2000, CORE’s gasoline averaged 8.14%, 7.29%, 10.48%, and 10.34% of MTBE by volume, respectively. For years when individual batch records were not produced in discovery by CORE, 1982-1996, internal CORE documents refer to MTBE in “all” finished gasoline manufactured at the facility. Based on this information and MTBE import and usage records, and with a possible few exceptions, it is my opinion that any finished gasoline purchased from or supplied by the CORE facility between 1982 and 2000 more likely than not contained MTBE.

BACKGROUND ON USE OF MTBE BY CORE

11. Based on data and testimony provided by CORE, MTBE was one of several high octane gasoline blendstocks used by CORE to make gasoline from June 1982 to May 2000. CORE discontinued blending MTBE with gasoline in May 2000, and it stopped production of gasoline altogether shortly thereafter.

12. In connection with lead phasedown, CORE began blending MTBE with gasoline in the middle of 1982. In addition to MTBE, CORE also blended TBA, toluene and mixed xylenes to increase the octane of gasoline so that it could be sold. In my professional experience, this is typical of gasoline manufacturing, in that a number of blendstocks can and are used to produce on-specification gasoline. However, both toluene and mixed xylenes generally have a significantly higher value when sold as chemicals as opposed to being sold as gasoline. Thus, their use as a gasoline blendstock would tend to be minimized. This opinion is supported by the testimony of former CORE employees and officers:

“Gasoline is a byproduct. Okay? So it is what it is. It comes off the unit what it is. And if it comes off too high of octane, then that is what it is. If it comes off too low of octane to be sold to these distributors we sold it to, its my understanding that we could use toluene as a component to boost the octane, but it’s a valuable aromatic. So you don’t want to do a lot of that.”¹

“Our operation was designed to produce cyclohexane, paraxylene and orthoxylene. The gasoline was merely a byproduct that we had to get rid of. So you’re operating the plant to maximize the production of cyclohexane, paraxylene and orthoxylene, depending on the economics which one. The gasoline part is just the byproducts of – the octane of gasoline is to handle after the processing – post-processing.”²

Thus, among MTBE, toluene, and mixed xylenes – the three high octane gasoline blendstocks identified by CORE – MTBE would have preferentially been used in gasoline manufacture. This fact is further supported by MTBE import and usage records produced by CORE.

13. MTBE was purchased and / or received by CORE continuously during the 1982 to 2000 time period. It was received at the plant as a blendstock.³ Once received, CORE did not re-sell MTBE.⁴ It’s only use at CORE was for blending into gasoline.⁵ In connection with this report, I reviewed the extensive use of MTBE in gasoline produced by CORE during this time period.

¹ Deposition of Richard Klett, September 6, 2013, at pp. 66-67.

² Deposition of Donald M. Sitton, September 5, 2013, at pp. 43-44.

³ 2MDLCP01029617 – 784, CORE Ex. 28, Appendix C – Gasoline Blending Description, at p. 7.

⁴ Deposition of Hector Marin, August 21, 2013, at p. 121; Deposition of Freddy Flores, October 2, 2013, at pp. 35-37.

⁵ Deposition of Juan Emelio Perez-Ortiz, September 25, 2013, at p. 47.

material changes in gasoline production operations occurred between 1990 and February 1994.⁹

18. I have examined gasoline blending tickets for the period 1995 to 2000 provided during discovery by CORE. The blending tickets demonstrate extensive use of MTBE at CORE during this time period, but in many cases they indicate that MTBE was not used in individual blends of gasoline. In reviewing this information, it is important to consider that multiple blending tickets are often used to produce one batch of finished gasoline. This fact is supported by testimony from former CORE employees, including its former gasoline blending specialist:

“Q. And that’s a batch of finished gasoline?

A. Finished gasoline. Then if we – if we talk about blending tickets, it probably might take two, three, four blending tickets to make a batch of gasoline.”¹⁰

In addition, in almost all cases, the tanks where “blend ticket” gasoline is blended already contained some amount of finished gasoline from prior batches, almost all of which contained MTBE. As a result, although some individual blend tickets did not contain MTBE, the resulting batches of finished gasoline that they contributed to did contain MTBE. This commingling of finished gasoline batches is also supported by the testimony of CORE’s former plant Optimization Manager.¹¹

USE OF MTBE BY CORE

19. Importantly, CORE produced incomplete MTBE import and usage records. However, based upon the data that was produced by CORE, CORE imported MTBE during every year from 1982 to 2000.¹² As noted, CORE stated that all of the MTBE that it imported was used for gasoline blending. Thus, based on my experience, CORE would have produced MTBE gasoline in each year between 1982 and 2000.

20. In addition, during October – December 1982, CORE utilized TBA in the manufacture of finished gasoline.

21. The quality and completeness of data provided by CORE varies considerably from year to year. I have reviewed the available data from the perspective of MTBE and TBA blending in gasoline produced by CORE during this period, and note the following for each year:

- 1982
 - Several sets of data were provided regarding received volumes of MTBE to CORE during 1982 but do not seem to be consistent with one another. Below are the volumes provided by source:

⁹ 2MDLCP01029617 – 784, CORE Ex. 28.

¹⁰ Deposition of Freddy Flores, October 2, 2013, at pp. 89-90.

¹¹ Deposition of Juan Emelio Perez-Ortiz, September 25, 2013, at pp. 161-63.

¹² MTBE import volumes are derived primarily from the following documents: CPCPR-032100 – 119, CORE Ex. 16; CPCPR-691936 – 956, SCHARRE Ex. 08; CPCPR-051767 – 768, CORE Ex. 17; CPCPR-032122 – 194, PEREZ Ex. 09; CPCPR-032740 – 777, CORE Ex. 24; CPCPR-032963 – 983, CORE Ex. 25; and CPCPR-032805 – 810, CORE Ex. 26.

- Source 1: CORE imported 29,777 barrels of MTBE in May and 19,763 barrels of MTBE in August for at least 49,540 barrels of MTBE.¹³ No other breakdown by individual shipment was provided.
 - Source 2: The total volume of MTBE contained in gasoline was 94,558 barrels from June through September 1982 based on CORE's summary of gasoline shipments.¹⁴
- CORE imported 29,820 barrels of TBA in October¹⁵ and 49,849 barrels of TBA in December¹⁶ for at least 79,669 barrels of TBA.¹⁷ No other breakdown by individual shipment was provided.
- During the period June through September 1982, 42 out of 53 shipments of gasoline from CORE contained MTBE. The total volume of gasoline containing MTBE was 2,763,152 barrels out of 3,047,471 barrels during this time period.¹⁸ Thus, 90.67% of the total finished gasoline sold contained MTBE. The average MTBE content of this gasoline is around 2.99 volume percent.
- During the period October through December 1982, 45 out of 59 shipments of gasoline from CORE contained TBA. The total volume of gasoline containing TBA was 2,940,286 barrels out of 3,259,100 barrels during this time period.¹⁹ Thus, 90.22% of the total finished gasoline sold contained TBA. The average TBA content of this gasoline is around 2.19 volume percent.
- 1983
 - CORE imported at least 310,690 barrels of MTBE during the year.²⁰ No breakdown by individual shipment was provided except for July (9,961 barrels of MTBE)²¹ and December (101,071 barrels of MTBE).²²
 - No information was provided regarding the MTBE content contained in finished gasoline produced by CORE.
 - Based on the minimum of reported imported MTBE volumes (310,690 barrels of MTBE during the year²³) and CORE gasoline sales volumes

¹³ CPCPR-051767 – 768, CORE Ex. 17.

¹⁴ CPCPR-051091 – 168, CORE Ex. 06.

¹⁵ CPCPR-691025 – 034.

¹⁶ CPCPR-691025 – 034.

¹⁷ CPCPR-691936 – 956, SCHARRE Ex. 08.

¹⁸ CPCPR-051091 – 168, CORE Ex. 06.

¹⁹ CPCPR-051091 – 168, CORE Ex. 06.

²⁰ CPCPR-032100 – 119, CORE Ex. 16; CPCPR-691936 – 956, SCHARRE Ex. 08.

²¹ CPCPR-051666 – 682, CORE Ex. 19.

²² CPCPR-032100 – 119, CORE Ex. 16.

²³ CPCPR-032100 – 119, CORE Ex. 16; CPCPR-691936 – 956, SCHARRE Ex. 08.

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

In Re: Methyl Tertiary Butyl Ether ("MTBE")
Products Liability Litigation

Master File No. 1:00-1898
MDL 1358 (SAS)
M21-88

This Document Relates to:

Commonwealth of Puerto Rico, et al.

v.

Shell Oil Co., et al.,

No. 07 Civ. 10470 (SAS)

Expert Generic Report of Marcel Moreau

Marcel Moreau Associates

Portland, Maine

Marcel Moreau

December 6, 2013

INTRODUCTION

Qualifications

I am a nationally recognized expert in underground petroleum storage systems. Since 1983 I have worked exclusively in the petroleum storage field, chiefly in the areas of regulation, storage system design, leak detection technology, and regulatory compliance assessment.

I have served as consultant to many private and governmental clients, including the U.S. Environmental Protection Agency (EPA), the Chesapeake Division of the U.S. Navy, the Petroleum Equipment Institute, and the American Petroleum Institute (API).

I have provided technical training concerning underground storage tank systems to state regulatory personnel in Alabama, Alaska, Arizona, California, Colorado, Delaware, District of Columbia, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, New Hampshire, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

I have authored a chapter discussing the federal underground tank regulatory program in the *Handbook of Storage Tank Systems*, a textbook sponsored by the Steel Tank Institute. I am a regular columnist for *L.U.S.T.Line*, a U.S. EPA-funded bulletin that covers issues associated with underground storage tank systems.

I have co-authored a paper entitled “MTBE as a Ground Water Contaminant,” published in the 1986 *Proceedings of the Petroleum Hydrocarbons and Organic Chemicals in Ground Water – Prevention, Detection and Restoration – A Conference and Exposition* co-sponsored by the API and the National Water Well Association (NWWA).

As a consultant to the Petroleum Equipment Institute (PEI), I have worked with PEI committees to produce eight petroleum industry recommended practices, including:

- *Recommended Practices for Installation of Underground Liquid Storage Systems* (1997, 2000, and 2005 editions)
- *Recommended Practices for Installation of Aboveground Storage Systems for Motor Vehicle Fueling* (1999 and 2003 editions)
- *Recommended Practices for Installation and Testing of Vapor-Recovery Systems at Vehicle-Fueling Sites* (2004 and 2009 editions)

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

In Re: Methyl Tertiary Butyl Ether ("MTBE")
Products Liability Litigation

Master File No. 1:00-1898
MDL 1358 (SAS)
M21-88

This Document Relates to:

Commonwealth of Puerto Rico, et al.
v.
Shell Oil Company, et al.,
No. 07 Civ. 10470

Expert Rebuttal Report of Marcel Moreau

Marcel Moreau Associates

Portland, Maine

Marcel Moreau

February 28, 2014

SECTION 2

RESPONSE TO EXPERT REPORT OF J. PAUL FRANTZ

2.1 SUMMARY OF OPINIONS

My opinions regarding warnings are as follows. MtBE producers and distributors:

- Were well aware that MtBE was significantly different from traditional constituents of gasoline.
- Recognized that MtBE gasoline required improved storage technology and enhanced handling procedures
- Did not communicate their knowledge of MtBE's properties to UST owners, operators, installers, testers and service technicians or fuel delivery personnel.
- Implemented UST management strategies in Puerto Rico that were inferior to what they implemented in the continental United States, despite their knowledge of MtBE's different properties.

My opinions are about the knowledge of defendants concerning MtBE and what they did or did not do with regard to that knowledge. My opinions in this case are not about the science of "warnings."

2.2 INTRODUCTION

Dr. Frantz and myself appear to be talking past one another when discussing the issue of "warnings." I believe there are two reasons for this. First, Dr. Frantz' opinions are based on a very narrow and restrictive meaning of the term "warnings" rather than the broad concepts of training and education (along with the accompanying teaching and reference materials) encompassed by my definition. Second, Dr. Frantz' opinions, as well as his background and experience, focus on "consumer" warnings addressed to users of a product, while my target audiences are the business owners and workers who deliver, store, and sell the product and service the equipment that is used to store and dispense the product.

In hopes of providing some clarification, I will define what I believe are some key terms and concepts. Specifically, I will define what I mean when I use the term "warning," and describe who I believe should have been the primary target audience for warnings concerning MtBE gasoline.

SECTION 2**RESPONSE TO EXPERT REPORT OF J. PAUL FRANTZ**

2.2.1 What is a “Warning?”

My use of the word warning in this report is based on the common usage of the word as found in a typical dictionary: advice to a group of an impending unfavorable event.¹⁷⁰

My definition of warning goes beyond simple orders such as “No Smoking” or slogans such as “Buckle Up for Safety.” My definition of warning includes educational documents, informational seminars, and publicity campaigns aimed at describing solutions and raising awareness about the issue of MtBE in gasoline. My definition of warning includes steps to take to prevent releases of gasoline from happening, detect releases effectively, and remediate releases efficiently when releases do happen. My definition of warning includes information concerning engineering solutions such as secondary containment, MtBE-specific leak detection, and pre-installed remediation systems.

The types of warnings that were needed included industry recommended practices, UST operation manuals, and equipment maintenance and servicing procedures. In addition to printed media, information concerning MtBE gasoline could also have been presented at oil industry sponsored quarterly meetings of gas station dealers as well as special workshops focused on proper handling of MtBE gasoline.

Because of the large quantity and diverse nature of the information to be conveyed to address the hazards of MtBE gasoline, my view is that methods more closely related to training and education would have been required to convey the complete “warning” message. A concise statement of the issue such as the “Don’t spill a drop” slogan that I have suggested would have been useful as a concise statement of the goal of the program, but such a slogan would not convey the information required to meet that goal.

The warning program I envision would not have replaced or supplanted all the existing warnings concerning the flammable and toxic nature of gasoline. Such warnings serve a useful

¹⁷⁰ Adapted from the definition of “warn” at <http://dictionary.reference.com/browse/warn>

SECTION 2**RESPONSE TO EXPERT REPORT OF J. PAUL FRANTZ**

and dispensing of gasoline than the typical “consumer” whose typical interaction with gasoline is to fill their car gas tank.

Dr. Frantz focuses his warning opinions on “consumers” who are typical citizens. This is the wrong audience to focus on. As an analogy, Dr. Frantz is focusing his warning opinions on the people who drive cars, while the focus of my opinions is the factory workers who make cars. The people who drive cars need to know about the rules of the road to operate the vehicle safely – the meaning of stop signs, yield signs, traffic lights, etc. The people who make cars need to know about the machinery they are operating - where to avoid placing their hands so they don’t get crushed, what the tolerances are on the parts they are making, how often to oil or clean the machinery, what sequence of buttons or levers they need to operate to produce the parts that they are responsible for. Though they are both interacting with cars, the information needs of the factory workers and the car drivers are vastly different. The science of “warnings” that Dr. Frantz cites at great length in his report is very different from the science of “learning.” It is the science of “learning” that is much more relevant to the challenge of teaching UST workers how to properly store, handle and dispense MtBE gasoline.

The livelihoods of UST workers are linked to the storage, handling and dispensing of gasoline. How UST workers do their jobs has a much greater potential to produce environmental contamination than those of the typical gasoline consumer. As a result, UST workers require much more detailed information about equipment for proper storage of gasoline, equipment to prevent and detect leaks from underground storage systems, procedures to minimize spills while servicing storage and dispensing systems, and procedures to prevent releases during fuel deliveries to these systems.

Industry documents show that oil companies understood that MtBE had different properties than traditional gasoline and required extra care in storage and handling. But the typical UST worker had no way of knowing that this was the case because, except for a difference in odor, the outward characteristics of MtBE gasoline were identical to traditional

Marcel Moreau

Page 1

UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF NEW YORK

- - -

IN RE: METHYL TERTIARY : MASTER FILE
BUTYL ETHER ("MTBE") : NO. 1:00-1898
LIABILITY LITIGATION : M21-88
PRODUCTS : MDL 1358(SAS)

-----:

COMMONWEALTH OF PUERTO :
RICO, ET AL., :
Plaintiff, :
vs. : CASE NO.
07-CIV-10470
(SAS)

SHELL OIL CO., ET AL., :
Defendants. :

- - -

Wednesday, May 14, 2014

- - -

Videotaped Deposition of MARCEL MOREAU
held at McDermott, Will & Emery LLP, 340 Madison
Avenue, 2nd Floor, New York, New York, on the
above date, beginning at 9:01 a.m., before
Kimberly A. Otherwise, a Certified Realtime
Reporter and Notary Public.

- - -

GOLKOW TECHNOLOGIES, INC.
877.370.3377 ph|917.591.5672 fax
deps@golkow.com

Marcel Moreau

<p style="text-align: right;">Page 54</p> <p>1 BY MS. HANE BUTT:</p> <p>2 Q Well, you can refer back to your CV.</p> <p>3 We've talked about it at length today. Do you</p> <p>4 understand my question?</p> <p>5 MS. O'REILLY: Vague, ambiguous,</p> <p>6 overbroad.</p> <p>7 THE WITNESS: Let me hear the</p> <p>8 question one more time.</p> <p>9 BY MS. HANE BUTT:</p> <p>10 Q Okay. Let me just restate it so that</p> <p>11 we have a clean record. In connection with the</p> <p>12 various presentations you've given over the</p> <p>13 years, both at the EP -- federal EPA level and</p> <p>14 the state EPA level, in the course of your</p> <p>15 presentations and educational seminars, have you</p> <p>16 ever attempted to provide the information that</p> <p>17 you indicate station owners and others needed</p> <p>18 with regard to MTBE?</p> <p>19 MS. O'REILLY: Assumes facts that</p> <p>20 the information was requested, vague,</p> <p>21 ambiguous, overbroad, incomplete.</p> <p>22 THE WITNESS: First of all, just</p> <p>23 to correct, EPA is either federal or</p> <p>24 regional. State agencies are usually not</p>	<p style="text-align: right;">Page 56</p> <p>1 BY MS. HANE BUTT:</p> <p>2 Q Correct.</p> <p>3 A Typically it's a time limitation. I</p> <p>4 mean, I have a limited amount of time in which</p> <p>5 to present typically a large amount of material.</p> <p>6 I don't have -- I'm not there, I've not been</p> <p>7 asked to provide information about MTBE. I've</p> <p>8 been asked to provide information about</p> <p>9 regulations, leak detection, how hardware works,</p> <p>10 not how to handle MTBE.</p> <p>11 Q <u>Have you quantified the percent</u></p> <p>12 <u>reduction you contend could have been achieved</u></p> <p>13 <u>through the warnings that you describe in this</u></p> <p>14 <u>paragraph that we've been discussing?</u></p> <p>15 MS. O'REILLY: <u>Vague, ambiguous,</u></p> <p>16 <u>overbroad.</u></p> <p>17 THE WITNESS: I've never</p> <p>18 attempted to quantify the reduction in</p> <p>19 releases that may have occurred as a result</p> <p>20 of the warnings or training and education</p> <p>21 being provided.</p> <p>22 BY MS. HANE BUTT:</p> <p>23 Q <u>Do you have an opinion?</u></p> <p>24 MS. O'REILLY: <u>Vague and</u></p>
<p style="text-align: right;">Page 55</p> <p>1 referred to as EPA. So I would have talked</p> <p>2 to state regulatory agencies, not EPA</p> <p>3 agencies.</p> <p>4 Usually I am retained by a party</p> <p>5 to provide information. Usually they</p> <p>6 specify what information they want.</p> <p>7 Typically it involves regulations, how to</p> <p>8 comply with regulations, how leak detection</p> <p>9 equipment works, the interaction between</p> <p>10 hardware and regulations. I've never been</p> <p>11 retained by an oil company or an MTBE</p> <p>12 producer to structure or put together a</p> <p>13 presentation on how to handle MTBE</p> <p>14 gasoline. I've never been asked to do</p> <p>15 that.</p> <p>16 BY MS. HANE BUTT:</p> <p>17 Q Is there anything about your retention</p> <p>18 that would have precluded you from providing</p> <p>19 that information?</p> <p>20 MS. O'REILLY: Objection; vague,</p> <p>21 ambiguous, overbroad, calls for</p> <p>22 speculation.</p> <p>23 THE WITNESS: So when I've been</p> <p>24 retained to do a presentation?</p>	<p style="text-align: right;">Page 57</p> <p>1 <u>ambiguous, overbroad.</u></p> <p>2 THE WITNESS: <u>I think it could</u></p> <p>3 <u>have -- it could have been -- it could have</u></p> <p>4 <u>been some reduction. I can't -- I have no</u></p> <p>5 <u>way of quantifying it beyond that.</u></p> <p>6 <u>And warnings are not standalone.</u></p> <p>7 BY MS. HANE BUTT:</p> <p>8 Q <u>There's no question pending. Thank</u></p> <p>9 <u>you.</u></p> <p>10 A <u>I had not completed my previous</u></p> <p>11 <u>question.</u></p> <p>12 Q <u>Okay.</u></p> <p>13 A <u>Warnings are not standalone; right?</u></p> <p>14 <u>The warnings have to go along with other</u></p> <p>15 <u>technologies to more effectively contain MTBE:</u></p> <p>16 <u>Methodologies for early detection and</u></p> <p>17 <u>remediation of MTBE, campaign widely for</u></p> <p>18 <u>improved handling of MTBE in gasoline. So</u></p> <p>19 <u>that's some of the content that would have been</u></p> <p>20 <u>part of training and education.</u></p> <p>21 Q <u>So if I understand you correctly,</u></p> <p>22 <u>warnings alone wouldn't have prevented releases</u></p> <p>23 <u>of MTBE?</u></p> <p>24 MS. O'REILLY: <u>Objection; vague</u></p>

15 (Pages 54 to 57)

Marcel Moreau

Page 58	Page 60
<p>1 <u>and ambiguous.</u></p> <p>2 <u>Go ahead.</u></p> <p>3 <u>THE WITNESS: A warning such as</u></p> <p>4 <u>don't spill is not -- you know, that would</u></p> <p>5 <u>be sort of the goal, but that's not the</u></p> <p>6 <u>warning. That's not the message. The</u></p> <p>7 <u>message is that you have to improve your</u></p> <p>8 <u>handling of MTBE gasoline, and how to do</u></p> <p>9 <u>that is the specific content that I had in</u></p> <p>10 <u>mind.</u></p> <p>11 BY MS. HANE BUTT:</p> <p>12 Q Turn to Page 25 of your report. Do</p> <p>13 you see there the reference to the Puerto Rico</p> <p>14 regulations?</p> <p>15 A I'm sorry. Which section are you in?</p> <p>16 Q I'm sorry. It's Page III-25.</p> <p>17 A Okay.</p> <p>18 Q Do you see that?</p> <p>19 A I do.</p> <p>20 Q And I believe this is -- is this the</p> <p>21 paragraph you were thinking of earlier when you</p> <p>22 said that you made a couple of revisions to your</p> <p>23 generic report to address Puerto Rico</p> <p>24 specifically?</p>	<p>1 Rules, the Puerto Rico rules have not been</p> <p>2 updated since 1990.</p> <p>3 BY MS. HANE BUTT:</p> <p>4 Q Do you have a general understanding as</p> <p>5 to why those proposed revisions were not</p> <p>6 implemented?</p> <p>7 MS. O'REILLY: Same objection;</p> <p>8 calls for speculation, vague, ambiguous,</p> <p>9 overbroad.</p> <p>10 THE WITNESS: No. I would be</p> <p>11 speculating. I don't believe I have an</p> <p>12 understanding of why those amendments never</p> <p>13 were finalized.</p> <p>14 BY MS. HANE BUTT:</p> <p>15 Q Did you review those proposed</p> <p>16 amendments?</p> <p>17 A I believe I may have seen a document</p> <p>18 related to those amendments. I don't recall if</p> <p>19 it was the exact content of the amendments, but</p> <p>20 I'm not recalling any specifics about that right</p> <p>21 now.</p> <p>22 Q Do you recall that the proposed</p> <p>23 amendments addressed MTBE?</p> <p>24 MS. O'REILLY: Assumes facts.</p>
Page 59	Page 61
<p>1 A This is the revision that I was</p> <p>2 thinking of, yes.</p> <p>3 Q And did you review the Puerto Rico</p> <p>4 regulations?</p> <p>5 A I believe I did.</p> <p>6 Q Do you know if the Puerto Rico 1990</p> <p>7 regulations have been revised since they were</p> <p>8 enacted?</p> <p>9 MS. O'REILLY: Vague and</p> <p>10 ambiguous, overbroad.</p> <p>11 THE WITNESS: My recollection is</p> <p>12 there was a -- a move -- movement towards</p> <p>13 revisions in the early 2000s. My</p> <p>14 understanding is those revisions never were</p> <p>15 finalized.</p> <p>16 BY MS. HANE BUTT:</p> <p>17 Q Do you know why?</p> <p>18 A I don't have the specifics.</p> <p>19 MS. O'REILLY: Objection; vague</p> <p>20 and ambiguous, calls for speculation.</p> <p>21 Go ahead.</p> <p>22 THE WITNESS: I don't have the</p> <p>23 specifics of why that did not happen. My</p> <p>24 understanding is that, as with the Federal</p>	<p>1 THE WITNESS: I don't recall that</p> <p>2 MTBE was mentioned in the amendments, but</p> <p>3 my recollection is certainly not perfect.</p> <p>4 MS. HANE BUTT: We've been going</p> <p>5 for about an hour. Let's take a short</p> <p>6 break.</p> <p>7 THE VIDEOGRAPHER: The time is</p> <p>8 10:08. We're off the record.</p> <p>9 (Short recess.)</p> <p>10 THE VIDEOGRAPHER: The time is</p> <p>11 10:16 and we're back on the record.</p> <p>12 BY MS. HANE BUTT:</p> <p>13 Q Mr. Moreau, as part of your work in</p> <p>14 this litigation, did you review documents</p> <p>15 concerning Puerto Rico's implementation of its</p> <p>16 UST program?</p> <p>17 MS. O'REILLY: Vague and</p> <p>18 ambiguous.</p> <p>19 THE WITNESS: I'm not sure I</p> <p>20 understand what you mean by</p> <p>21 "implementation."</p> <p>22 BY MS. HANE BUTT:</p> <p>23 Q Are you aware that from time to time</p> <p>24 EPA reviewed Puerto Rico's performance of its</p>

16 (Pages 58 to 61)

Marcel Moreau

Page 86	Page 88
<p>1 I've ever requested to be qualified as an 2 expert in warnings. I am familiar with 3 training, education, and the types of 4 information that can or should be 5 communicated to people like delivery 6 drivers, service technicians, 7 owner-operators, those kinds of issues. 8 BY MS. HANE BUTT: 9 Q Do you hold yourself out to be an 10 expert on the language that should be employed 11 to communicate hazards? 12 MS. O'REILLY: Vague, ambiguous, 13 overbroad, incomplete hypothetical. 14 THE WITNESS: In terms of 15 specific warnings to -- you know, as -- in 16 terms of specific warning language for 17 particular hazards that are found in lots 18 of documents and on trucks and with all 19 that kind of stuff, I have not. In terms 20 of information that needs to be 21 communicated to owner-operators, delivery 22 drivers, service technicians, that kind of 23 stuff, I don't believe I've ever asked to 24 be qualified, but I believe I do know what</p>	<p>1 through warnings?") 2 MS. O'REILLY: Same objection. 3 You can continue with your 4 answer. 5 <u>THE WITNESS: I don't consider my</u> 6 <u>expert -- myself an expert in terms of how</u> 7 <u>to modify behavior through warnings. I do</u> 8 <u>understand some of the information or some</u> 9 <u>of the -- of what's necessary to modify</u> 10 <u>behavior through training and education.</u> 11 BY MS. HANE BUTT: 12 Q Have you ever been qualified as an 13 expert on those issues? 14 MS. O'REILLY: Argumentative, 15 vague, ambiguous, overbroad. 16 THE WITNESS: To date I don't 17 believe I've been qualified as an expert on 18 training and education issues. 19 BY MS. HANE BUTT: 20 Q You qualified it by "to date." Do you 21 have plans to seek to be qualified in that 22 regard? 23 MS. O'REILLY: Same objections. 24 THE WITNESS: I don't have any</p>
Page 87	Page 89
<p>1 that information is. 2 BY MS. HANE BUTT: 3 Q Are you purporting to be an expert on 4 how to modify behavior through warnings? 5 MS. O'REILLY: Argumentative, 6 assumes facts, incomplete hypothetical, 7 vague and ambiguous. 8 THE WITNESS: I don't believe I 9 have ever asked to be qualified -- 10 BY MS. HANE BUTT: 11 Q Aside -- I'm not asking if you've been 12 asked to. I'm just asking you if you regard 13 yourself as an expert in that area. 14 MS. O'REILLY: Objection. You 15 interrupted the witness. 16 Go ahead and finish your answer. 17 THE WITNESS: Could I hear that 18 question again? 19 MS. HANE BUTT: Sure. 20 Can you read it back. 21 (The court reporter read the 22 record as follows: 23 "QUESTION: Are you purporting to 24 be an expert on how to modify behavior</p>	<p>1 particular plans, but I never know what the 2 future holds. 3 BY MS. HANE BUTT: 4 Q Have you been asked to render any 5 opinions in this litigation regarding the 6 damages that have been incurred at any of the 7 trial sites in this litigation? 8 MS. O'REILLY: Vague and 9 ambiguous. 10 THE WITNESS: Are we talking 11 dollars? 12 BY MS. HANE BUTT: 13 Q Yes. 14 A I have not been asked to provide any 15 opinions about the damages that may have 16 occurred as a result of any of the releases at 17 issue in this case. 18 Q Have you been asked to provide any 19 opinions regarding the effectiveness of remedial 20 activities at any of the trial sites at issue? 21 MS. O'REILLY: Vague, ambiguous, 22 overbroad. 23 THE WITNESS: I have not been 24 asked to provide any opinions about the</p>

23 (Pages 86 to 89)

Marcel Moreau

Page 346

UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF NEW YORK

IN RE: METHYL TERTIARY : MASTER FILE
BUTYL ETHER ("MTBE") : NO. 1:00-1898
LIABILITY LITIGATION : M21-88
PRODUCTS : MDL 1358(SAS)

COMMONWEALTH OF PUERTO :
RICO, ET AL., :
Plaintiff, :

: CASE NO.
vs. : 07-CIV-10470
:(SAS)

SHELL OIL CO., ET AL., :
Defendants. :

Thursday, May 15, 2014
VOLUME II

Continued Videotaped Deposition of
MARCEL MOREAU held at McDermott, Will & Emery
LLP, 340 Madison Avenue, 2nd Floor, New York,
New York, on the above date, beginning at 9:01
a.m., before Kimberly A. Overwise, a Certified
Realtime Reporter and Notary Public.

GOLKOW TECHNOLOGIES, INC.
877.370.3377 ph|917.591.5672 fax
deps@golkow.com

Golkow Technologies, Inc. - 1.877.370.DEPS

Marcel Moreau

Page 535

1 BY MR. BOLLAR:

2 Q I'm sorry. Is there a method there?

3 A The method --

4 MS. O'REILLY: Objection; assumes
5 facts, lacks foundation, argumentative.

6 THE WITNESS: The method, it

7 seems to me, is one of logic. All right?

8 We identify a problem. We identify some

9 solutions. The people who identify the

10 solutions happen to be the ones who are

11 making and selling this stuff. Then

12 doesn't it make sense that the people

13 making and selling this stuff should be

14 telling the people they're providing it to

15 how to use it?

16 Isn't that the stewardship

17 concept that a lot of the major oil

18 companies have propounded in recent years

19 about how when they make a product, they're

20 responsible for it? Not just when it goes

21 out the refinery door, but they're

22 responsible for it all through the chain of

23 when it gets -- you know, till it finally

24 gets used somewhere in some piece of

Golkow Technologies, Inc. - 1.877.370.DEPS

Exhibit 3



UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

Master File No. CA 1:00-1898(SAS)
MDL No. 1358

In re: Methyl Tertiary Butyl Ether ("MTBE")
Products Liability Litigation

This Document Relates To: Commonwealth of Puerto Rico v. Shell Oil Co. et al., Case
No. 07 Civ. 10470 (SAS)

EXPERT REPORT OF GRAHAM E. FOGG, Ph.D.

A handwritten signature in black ink, appearing to read "G. E. Fogg".

Graham E. Fogg, Ph.D.
Carmichael, CA
January 15, 2014

despite the existence of contamination, i.e., MTBE did not appear to be a common consideration driving site characterization.

The data available to me contain MTBE testing results for 17 out of an estimated 11,463 private drinking water wells and 338 out of 773 public drinking water wells. Moreover, the sampling of public wells was infrequent: 53% of wells were not sampled; 47% of wells sampled were only sampled once; 86% of wells sampled were sampled once or twice.

- **Cleanup of groundwater contamination is difficult, costly and sometimes impossible.** The subsurface is complex, and once a persistent contaminant like MTBE enters the groundwater, it can both migrate rapidly in the fast pathways and be retained in relatively inaccessible portions of the medium from which it can slowly “bleed” out over time scales of years to decades. The retention of groundwater contaminants in inaccessible portions of the subsurface both exacerbates groundwater cleanup and prolongs the presence of the contaminant in the aquifer. Indeed, subsurface contamination has the potential to threaten drinking supply wells for decades. This is especially true when the contaminant is resistant to biodegradation, as is the case with MTBE.
- **MTBE is highly resistant to biodegradation under natural conditions in groundwater systems.** Evidence indicates that biodegradation, should it occur at all, is unlikely to proceed at rates high enough to control plume migration and prevent the spread of MTBE in groundwater to drinking water sources. Natural attenuation through biodegradation cannot be relied upon to protect drinking water sources in groundwater from MTBE contamination. Microorganisms capable of transforming MTBE into less toxic substances do not appear to be either present, or present in significant numbers, at many contaminated sites. Even where such microorganisms are present, many complicating factors inhibit or virtually eliminate significant biodegradation. Laboratory studies point to long periods of time before MTBE degradation occurs; a dependence on the

availability of oxygen in many cases; slow growth of microorganisms and slow rates of degradation; inhibitory effects; and incomplete degradation, resulting in the formation of toxic byproducts such as tertiary butyl alcohol (TBA), which is more soluble than MTBE and similarly mobile in groundwater. Compared to other soluble compounds found in gasoline, such as toluene and benzene, MTBE is considered recalcitrant. The use of MTBE isotope ratios or TBA to MTBE concentration ratios as proxy indicators to assess the occurrence and/or extent of MTBE biodegradation tends to be unreliable because of the confounding effects of physical and chemical processes that also affect these ratios.

- **While studies have shown that MTBE may degrade under specific laboratory conditions, there is scant evidence to indicate that it can be degraded at appreciable rates under natural, mostly anaerobic, non-engineered conditions common at contaminated sites.** The mere existence of conditions under which a compound might biodegrade neither guarantees, nor implies that the contamination will generally be eliminated or reduced significantly through biodegradation.
- **The essence of the MTBE problem is that present-day impacts, which are significant, are not an accurate measure of the ultimate impacts of MTBE. This is because of the long lag time (commonly decades to centuries) in many aquifers between introduction of groundwater contaminants and their arrival at drinking water supply wells.** The properties of MTBE, basic principles of hydrogeology, and past experiences with groundwater contaminants first introduced approximately 50-60 years ago, indicate that MTBE impacts will continue into the future. Basic hydrogeology (i.e., the rate at which groundwater moves) dictates that most MTBE plumes will not reach drinking water supply wells until decades from the time of release. Experience with contaminants like nitrate, TCE, PCE, DBCP, and many others bears out this phenomenon. These groundwater contaminants were introduced initially in elevated quantities circa 1940-1950, yet did not cause appreciable pollution in drinking water wells until the 1970's through the present. It is noteworthy that nitrate, TCE, PCE and

DBCP have all been shown to biodegrade under certain conditions, yet these biodegradation processes are not sufficiently ubiquitous to protect groundwater resources. TCE and PCE, which are less mobile in the subsurface than is MTBE, have contaminated considerable quantities of groundwater over time.

- **The new and continuing MTBE impacts from known and unknown, dispersed MTBE sources, and the severity and persistence of MTBE contamination, combined with complex phenomena, such as variability of groundwater recharge, tortuous fracture networks in hard rock, and tortuous networks of pores in karstic limestone necessitates frequent, long-term, statewide monitoring for MTBE in public and private drinking water wells.**
- **Drinking water wells have been impacted by MTBE and many more are vulnerable to MTBE contamination because of the collocation of drinking water supply wells and leaking underground fuel tanks (LUFTs).**
- **Nationwide water quality surveys have shown MTBE to be either the most commonly detected, or the second most commonly detected volatile organic compound (VOC) in subsurface drinking water sources.** The widespread detection of MTBE in water sources in the United States is clearly expressed in many of these reports. MTBE, a compound whose widespread use began only relatively recently, already was detected in 20% of wells in high-use areas and is the second most frequently detected VOC. Further, this contamination is expected to migrate deeper into the subsurface over time, eventually impacting deep water supply wells. These phenomena have also proved to be true in Puerto Rico.
- **TBA is a co-product of MTBE and is found as an impurity in the MTBE added to gasoline.** The TBA content in MTBE varies widely, and can be as high as 10%. Because TBA is completely miscible with water (no solubility limit), even trace amounts of TBA in gasoline can result in large aqueous TBA concentrations, e.g., hundreds of thousands of ppb, when MTBE oxygenated gasoline comes in contact with water.

- **Numerous states and countries have moved to phase out MTBE over intervals of several years. Because of concerns over groundwater contamination, 26 States have taken some form of action, to either ban or phase out MTBE. Puerto Rico moved to ban MTBE use in January of 2012.** Actions to limit the use of MTBE have also been taken in Denmark and Australia, and by refiners in Canada and the U.S.
- **About 40 percent of the United States public drinking water comes from groundwater and more than 40 million additional people obtain their drinking water from privately owned wells. In Puerto Rico, an estimated 14% of the public drinking water (15% of all drinking water) comes from groundwater; 30,722 people rely on groundwater obtained from private wells.** Groundwater contamination that renders significant volumes of water undrinkable is, at best, highly undesirable or, at worst, disastrous for the public.

4 Fate and Transport of MTBE in Groundwater

In the United States today, there are thousands of public drinking water wells (and many more private wells) in the vicinity of MTBE plumes from leaking underground storage tanks¹⁰ (LUSTs) (see Figures 2.2 and 2.3). These “... LUST sources can persist for decades and ... it can take tens to hundreds of years for groundwater to flow from source areas to a [community water supply] CWS well” (*Johnson et al., 2000*). Knowledge of the hydrogeologic processes governing MTBE fate and transport is therefore key to assessing past, present, and potential future MTBE impacts on groundwater.

4.1 Chemical and Physical Characteristics of MTBE in Groundwater

MTBE is a problematic groundwater contaminant because it is both a health concern and has an objectionable taste and odor at very low concentrations; it is highly mobile, migrating at nearly the same speed as the groundwater itself; extremely soluble leading to high source concentrations at release sites; and very persistent, giving it time to spread and contaminate large volumes of groundwater.

Minute amounts of MTBE-containing gasoline can pollute large volumes of water to the point where that water is no longer usable. “Very small releases of MTBE (even small overfills seeping into cracks in the pavement) have the potential to adversely impact groundwater” (*Stanley, 1998*). To put it in perspective, just 1 tablespoon of MTBE can render more than 586,000 gallons (2,220,000 liters) of water undrinkable (at 5 µg/l). Thus, the MTBE at 1% by vol. in gasoline¹¹ in a 16-gallon (60.6 liters) car tank has the potential to render more than 21 million gallons (79 million liters) of water undrinkable.

¹⁰ Most LUST sites are leaking underground fuel (gasoline) tanks (LUFTs). For the purposes of this document, LUST and LUFT are generally interchangeable. The term LUST is commonly used in California because of the California State Water Resources Control Board Underground Storage Tank Program.

¹¹ 1% by volume MTBE is approximately *one tenth* of the percentage added to produce MTBE RFG sold in California, New Hampshire, New York and elsewhere prior to the bans. The available information indicate that when MTBE was added to gasoline sold in Puerto Rico, it was often added at concentrations greater than 1%.

Graham E. Fogg, Ph.D.

Page 1

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

IN RE: METHYL TERTIARY BUTYL
ETHER ("MTBE") PRODUCTS
LIABILITY LITIGATION

This Document Relates to:

Master File
No. 1:00-1898
MDL 1358
(SAS): M21-88

Commonwealth of Puerto Rico,
et al.

v.

Shell Oil Co., et al.

Case No. 07-CIV-10470 (SAS)

_____/

-- -- --
TUESDAY, MAY 27, 2014
-- -- --

Videotaped Deposition of GRAHAM E. FOGG,
Ph.D., Expert Witness, Volume I, held at Miller,
Axline & Sawyer, 1050 Fulton Avenue, Suite 100,
Sacramento, California, beginning at 9:12 a.m.,
before Sandra Bunch VanderPol, FAPR, RMR, CRR,
CSR #3032

-- -- --

GOLKOW TECHNOLOGIES, INC.
877.370.3377 ph|917.591.5672 fax
Deps@golkow.com

Graham E. Fogg, Ph.D.

Page 166	Page 168
<p>1 occurrence of MTBE that was higher, then it was 2 lower, then they stopped sampling. 3 I have seen -- in cases where I have seen 4 more continuous monitoring of contamination at either 5 monitoring wells or drinking water wells, I typically 6 see a lot of fluctuation. So I would personally, you 7 know, not stop monitoring wells like that just 8 because there happen to be a year or a sampling 9 period where nothing was detected. 10 That's an indication of not enough sampling 11 and not enough characterization. 12 Q. With respect to the Claro Well at 13 Hato Rey -- Total 1012 is also the name of this 14 site -- that site had a detection -- pardon me, that 15 well, Isabella Catolica, had a detection somewhere 16 around 5 parts per billion in November of 2004; is 17 that correct? 18 A. No. I thought I found it on the 19 graph. Now I'm having trouble finding it. 20 Yeah, I'm not finding either well on that 21 draft. I saw some other plots here that -- oh, okay. 22 So to answer your question, although I'm 23 having trouble pointing to a specific well right now, 24 yeah, I've seen wells where they have seen a detect 25 and then a nondetect.</p>	<p>1 MTBE? 2 A. Are there any wells in the 3 vicinity -- drinking water wells? 4 Q. Yes. 5 A. I would have to double-check that 6 based on which -- whether any of these data are 7 drinking water wells and not just monitoring wells. 8 Q. <u>With regard to tert-Butyl alcohol, do</u> 9 <u>you know whether tert-Butyl alcohol can be present in</u> 10 <u>MTBE as a residual intermediate for certain processes</u> 11 <u>used to make MTBE?</u> 12 A. <u>Yes. It is my understanding that if</u> 13 <u>there's MTBE in the gasoline, there's quite commonly</u> 14 <u>some TBA there as well from the -- from the</u> 15 <u>manufacturing process.</u> 16 Q. And do you know which specific 17 manufacturing process for the manufacture of MTBE is 18 the one which is more likely to have a resulting 19 residual TBA content in MTBE? 20 A. There might be something on this in 21 Exhibit 1. But I will -- I will briefly take a look. 22 Yeah, I don't recall the process that would 23 have put TBA in the MTBE. 24 Q. With regard to TBA, do you know if 25 any refiner supplying petroleum products to the</p>
Page 167	Page 169
<p>1 And then, quite commonly, I see that they, 2 in a practice that I think is ill advised, stop 3 monitoring. 4 Q. In looking, though, at Figure 7.9, I 5 believe you referred us to 7.9, am I correct, on 6 page 104? 7 A. At 104, yes, I was looking at it. 8 Q. And is it your understanding that the 9 Isabella Catolica Well is a public well? 10 A. I don't know that. But I was looking 11 over these plots, and I think in several cases the 12 named wells in these plots are not just monitoring 13 wells but they are supply wells. 14 Q. And can you identify for us in 15 Figure 7.9 which of those named wells you believe are 16 supply wells? 17 A. I would have to check up on that. 18 No. 19 Q. Do you want to take a moment to do 20 that? Go right ahead. 21 A. I have no way of doing that right 22 now. 23 Q. Okay. Do you know if there have been 24 any wells in the vicinity of the Hato Ray Service 25 Station for Total which have had any detections of</p>	<p>1 retail gasoline market in Puerto Rico used TBA as an 2 octane booster in conventional gasoline? 3 A. No. I don't -- I'm not aware of any 4 circumstance where that's the case. 5 Q. <u>With respect to TBA, do you know</u> 6 <u>whether or not any of the refiners supplying gasoline</u> 7 <u>to Puerto Rico used a particular manufacturing</u> 8 <u>process to make MTBE which was likely to result in</u> 9 <u>residual TBA being present in the MTBE product added</u> 10 <u>to gasoline?</u> 11 A. <u>No. But I don't know that that's</u> 12 <u>true for any site in the U.S. You know, we have --</u> 13 <u>TBA occurs with MTBE in many cases and was measured</u> 14 <u>to be in the original product. So determining</u> 15 <u>exactly how it got there, to my knowledge, is still a</u> 16 <u>difficult thing to do, especially in retrospect.</u> 17 Q. With regard to TBA, are you aware of 18 detections of TBA in groundwater around the trial 19 focus sites which may be indicative of MTBE 20 biodegradation? 21 A. No. And, as I've testified, even if 22 you did find it there, it would not necessarily be 23 indicative of MTBE biodegradation. 24 Q. And why not? 25 A. As I've testified about and published</p>

43 (Pages 166 to 169)

REVISED EXPERT REPORT OF ANTHONY BROWN

MTBE LITIGATION PROJECT Puerto Rico

Prepared for:
The Law Office of John K. Dema, P.C.
Orlando H. Martinez Law Offices
Miller, Axline & Sawyer
Jackson Gilmour & Dobbs P.C.

April 2014
Project No.: 007-02

Aquilologic, Inc.
245 Fischer Avenue, Suite D-2
Costa Mesa, CA 92626
Tel. +1.714.770.8040
Web: www.aquilologic.com



1.0 OPINIONS OF ANTHONY BROWN

This written report is submitted in compliance with the disclosure requirements set forth in the Federal Rules of Civil Procedure (FRCP) 26(a)(2)(B), subject to the right to supplement the report in accordance with FRCP 26(e). This report focuses on an evaluation of methyl tertiary-butyl ether (MTBE) and/or tert-butyl alcohol (TBA) contamination at ten sites within the Commonwealth of Puerto Rico (Puerto Rico) (see Figure 1.1). MTBE releases at these sites have impacted the groundwater resources managed by the Government of Puerto Rico, Office of the Governor, Environmental Quality Board (EQB).

The exhibits that will be used to summarize or support the opinions expressed in this report are the exhibits which appear in, or are transmitted with, this report. The exhibits may subsequently be revised to allow for presentation in a manner appropriate to the proceeding where they are used. I reserve the right to update my opinion as new information becomes available.

1.1 Introduction

There are numerous facilities throughout Puerto Rico that refine, store, or sell petroleum products. Many of these facilities have documented releases of these products to the environment. In many cases, these releases have polluted water resources.

In general, petroleum products, such as gasoline, are a mix of many individual chemical compounds. The chemicals in gasoline are predominantly aliphatic and aromatic hydrocarbon compounds (comprised of carbon and hydrogen atoms) derived from the refining of crude oil. In addition, other chemicals are then added to gasoline to improve its performance.

Most of the hydrocarbon compounds in gasoline have a relatively limited impact on water resources due to their fate and transport properties; that is, they do not migrate very far in the environment and naturally biodegrade. However, due to its fate and transport properties (see Section 2.7), MTBE has a significant impact on water resources when gasoline containing the chemical is released to the environment.

Given the widespread historical use of MTBE in gasoline and the propensity of the systems that store gasoline to leak, significant MTBE contamination of water resources exists throughout Puerto Rico.

The Commonwealth, notably the EQB, has the authority and responsibility to manage, protect and, where necessary, restore water resources in the Commonwealth in the interests of present and future citizens. The EQB directs those parties responsible for pollution of water resources to implement programs to investigate and remediate their contaminant releases.

Table 1.2 Summary of Key Opinions

Number	Key Opinion	Key Bases (for plaintiff-selected sites)	ESSO #242	ESSO #364	Shell #3042	Texaco #800	Total #1012	Pozo Club de Leones	Maysonet Service Station	Manati Municipal Garage	PF Guayama
1.	Have releases of gasoline containing MTBE occurred at the Site?	Sections #2.2, #4.2, #6.2	Y	Y	Y	Y	Y	Y*	Y	Y	P
2.	Has MTBE impacted groundwater beneath the Site?	Sections #2.2, #4.2, #4.4, #6.2	Y	Y	Y	Y	Y	Y*	Y(soil)/P (GW)		P
3.	Has TBA impacted groundwater beneath the Site?	Sections #2.2, #4.2, #4.4, #6.2	Y	Y	Y	Y	Y	P*	P	P	P
4.	Has MTBE migrated off-site beyond the Site boundaries?	Sections #2.2, #4.4, #6.3	Y	Y	Y	Y	Y	Y*	P	P	P
5.	Has TBA migrated off-site beyond the Site boundaries?	Sections #2.2, #4.4, #6.3	Y	Y	Y	Y	Y	P*	P	P	P
6.	Has groundwater contamination co-mingled with releases from nearby facilities?	Section #4.4.1	P	Y	N	N	N	N	N	N	N
7.	Have investigations delineated the extent of MTBE contamination in groundwater laterally?	Sections #4.4.3, #4.6.3	N	N	N	N	N	N	N	N	N
8.	Have investigations delineated MTBE in groundwater vertically?	Sections #4.4.3, #4.6.3	N	N	N	N	N	N	N	N	N
9.	Have investigations delineated the extent of TBA contamination in groundwater laterally?	Sections #4.4.3, #4.6.3	N	N	N	N	N	N	N	N	N
10.	Have investigations delineated TBA in groundwater vertically?	Sections #4.4.3, #4.6.3	N	N	N	N	N	P	N	N	N
11.	Does MTBE contamination in groundwater exist beyond the current monitoring network?	Sections #4.4.3, #4.6.3; Opinions 7 & 8	Y	Y	Y	Y	Y	P	P	P	P
12.	Does TBA contamination in groundwater exist beyond the current monitoring network?	Sections #4.4.3, #4.6.3; Opinions 9 & 10	Y	Y	Y	Y	Y	P	P	P	P
13.	Has remediation performed to date effectively addressed on-site MTBE/TBA groundwater contamination?	Section #5; Opinions 2 & 3	N	N	N	N	N	N*	N	N	N
14.	Has remediation performed to date effectively controlled the off-site migration of MTBE/TBA groundwater contamination?	Section #5; Opinions 4, 5, 7, 8 & 10	N	N	N	N	N	N*	N	N	N
15.	Does off-site groundwater contamination exist?	Sections #4.4, #6.3; Opinions 7 & 9	Y	Y	Y	Y	Y	Y*	P	P	P
16.	Is additional investigation required?	Section #7; Opinions 7, 9, 11 & 12	Y	Y	Y	Y	Y	Y	Y	Y	Y
17.	Is investigation of deeper groundwater zones required?	Section #7; Opinions 8, 10, 11 & 12	Y	Y	Y	Y	Y	Y	P	P	P
18.	Is additional on-site remediation of groundwater required?	Section #5, 11 (FS)	Y	Y	Y	Y	Y	P*	P	P	P
19.	Is additional off-site remediation of groundwater required?	Section #5, 11 (FS)	Y	Y	P	P	P	P*	P	P	P
20.	Do releases pose a threat to deeper aquifers?	Sections #6.3, #6.5; Opinions 7, 8, 9, 10, 16 & 17	Y	Y	Y	Y	Y	Y	P	P	P
21.	Do releases pose a threat to water supply wells, surface bodies, or building occupants through vapor intrusion?	Sections #6.3, #6.5, #7; Opinion 20	Y	Y	Y	Y	Y	Y	P	P	P

Notes:

Y - Yes

N - No

P - Possible

Y* - At release site(s) in the vicinity of Pozo Club de Leones

N* - No remediation at release site(s) in the vicinity of Pozo Club de Leones

P* - At release site(s) in the vicinity of Pozo Club de Leones

Anthony Brown

Page 243

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

In re: Methyl Tertiary Butyl Ether
("MTBE") Products Liability Litigation
_____X

Master File No. 1:00-1898
MDL No. 1358 (SA)
M21-88

Commonwealth of Puerto Rico, et al.

v.

Shell Oil Co., et al.
Case No. 07-CIV-10470 (SAS)
_____X

- - -

FRIDAY, MAY 23, 2014

- - -

VIDEO DEPOSITION OF ANTHONY BROWN,
VOLUME 2, held at the offices of McDermott
Will & Emery, LLP, 4 Park Plaza, Suite 1700,
Irvine, California, commencing at 9:14 a.m.,
on the above date, before Lisa Moskowitz,
California Certified Shorthand Reporter
No. 10816, RPR, CLR.

- - -

GOLKOW TECHNOLOGIES, INC.
877.370.3377 ph|917.591.5672 fax
Deps@golkow.com

Anthony Brown

Page 404	Page 406
<p>1 which preferentially will biodegrade MTBE 2 rather than benzene in sites that you've 3 looked at?</p> <p>4 A. I cannot state for certain, but I 5 suspect that there are bacteria that may 6 biodegrade MTBE preferentially, but in 7 general, it is the benzene that biodegrades 8 first given that these populations are more 9 common and the rate of that biodegradation 10 of that compound is generally considered to 11 be much more rapid than it is for MTBE.</p> <p>12 Q. With regard to TBA, is it your 13 opinion that TBA can biodegrade in 14 groundwater systems?</p> <p>15 A. TBA? Yes. TBA can biodegrade 16 also.</p> <p>17 Q. And is there any evidence that 18 you've seen to identify any of the release 19 sites that you've looked at indicating that 20 TBA is biodegrading the groundwater systems?</p> <p>21 A. Again, the level of data that's 22 been collected would not allow us to confirm 23 that TBA is biodegrading and would 24 definitely not allow us to determine the 25 rate of that biodegradation.</p>	<p>1 A. Yes, I do.</p> <p>2 Q. And with regard to that table, it 3 indicates for TBA that there are elevated 4 concentrations of TBA that were observed in 5 testing by Aquilogic or its subcontractors 6 in GP3 and GP4. Am I correct?</p> <p>7 A. That is correct, yes.</p> <p>8 <u>Q. And with regard to that TBA, is it</u> 9 <u>your opinion that that TBA, in part, is</u> 10 <u>attributable to biodegradation of MTBE at</u> 11 <u>the Esso Ponce 364 site?</u></p> <p>12 <u>A. In part, yes.</u></p> <p>13 Q. Are you able with the information 14 that you have available to you to estimate 15 how much the TBA detected in GP3 and GP4 at 16 the Esso Ponce 364 site came from 17 biodegradation?</p> <p>18 A. No, not with the information that's 19 currently available.</p> <p>20 Q. Did you see any data indicating 21 that TBA was detected on the service station 22 site at or near the point of release?</p> <p>23 A. If I recall, I don't believe 24 groundwater samples collected on-site have 25 been analyzed for TBA.</p>
Page 405	Page 407
<p>1 Q. With respect to your professional 2 experience, have you used compound-specific 3 isotope analysis to assist you in 4 determining whether or not biodegradation of 5 MTBE is occurring at a site?</p> <p>6 A. Yes.</p> <p>7 Q. And with regard to the analysis of 8 groundwater using compound-specific isotope 9 analysis, have you concluded that upon 10 observing enrichment of certain isotopes 11 that MTBE was biodegrading at a site?</p> <p>12 A. I cannot remember the results, but 13 I understand that to be the principle behind 14 the concept of using stable isotope 15 analysis.</p> <p>16 Q. And in the instance where you've 17 used compound stable isotope analysis, did 18 you determine that MTBE was biodegrading?</p> <p>19 A. I can't recall for certain, but I 20 believe we did conclude it was occurring.</p> <p>21 Q. In your report, specifically the 22 April revised expert report, after page 84, 23 there is a table of groundwater results for 24 Esso 364.</p> <p>25 Do you have it before you?</p>	<p>1 Q. Did you have any discussions in the 2 course of performing work on this project in 3 which you considered factoring 4 biodegradation into any of the analysis that 5 you were doing for potential impacts to 6 receptors in the future?</p> <p>7 A. With respect to our overall 8 analysis, we did consider biodegradation in 9 developing our conceptual models, and 10 discussions of biodegradation are presented 11 within my expert report. However, with 12 respect to the modeling that we performed, 13 we did not consider biodegradation.</p> <p>14 Q. And you discuss biodegradation in 15 your report because you believe it is 16 occurring at these sites that you looked at, 17 but you're unable with the information you 18 have to determine the rate at which it may 19 be occurring or precisely what locations 20 it's occurring. Is that a fair statement?</p> <p>21 A. I think it is fair to state that 22 one would expect some level of 23 biodegradation to be occurring. 24 Unfortunately, the data is not being 25 collected that would allow us to confirm</p>

42 (Pages 404 to 407)



**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK**

**Master File No. 1:00-1898
MDL No 1358 (SAS)
M21-88**

**In re: Methyl Tertiary Butyl Ether ("MTBE")
Products Liability Litigation**

This Document Relates To:

*Commonwealth of Puerto Rico, et al. v.
Shell Oil Company, et al., No. 07 Civ. 10470*

**EXPERT REPORT OF KENNETH RUDO
Ph.D.; Toxicologist**

**Kenneth Rudo
Chapel Hill, North Carolina
December 6, 2013**

II. Summary of Key Opinions

A. Based on the information in the scientific literature, MTBE is a genotoxic carcinogen and as such, has no safe level of human exposure, especially in drinking water. Any exposure can result in an increased long-term risk of cancer for humans. This is a basic tenet of the approach that is still utilized by EPA, ATSDR, and numerous state health agencies that perform human health risk assessments. Both ATSDR and EPA still hold to this zero-risk approach in its risk calculations for genotoxic carcinogens.²

B. MTBE is metabolized to formaldehyde in the human body.

C. MTBE causes lymphomas and leukemias in animal studies. Formaldehyde causes leukemias in animal studies and is classified as a known human carcinogen for leukemia.

D. The link between MTBE and formaldehyde described above indicates that because MTBE is metabolized to formaldehyde, which is a known human carcinogen, then MTBE from a toxicological standpoint may be considered a chemical that can cause cancer in humans in the absence of human epidemiological studies for MTBE.

E. MTBE poses an increased human health risk due to the potential for exposure in drinking water. There is also significant exposure from ingestion, bathing, showering, and whole house exposure due to the volatility of MTBE. Throughout the U.S. and Puerto Rico, there are numerous public and private drinking water wells contaminated with MTBE, and from 1979 to the present, there were leaking underground storage tanks (USTs) that allowed MTBE and other gasoline compounds to get into groundwater aquifers and from there to contaminate public and private drinking water wells.

F. As of the date of this report, every MTBE animal cancer study I have reviewed in its entirety or from a preliminary standpoint has found statistically significant levels of cancer from MTBE exposure. There are no negative animal cancer MTBE studies. ATSDR and the New York State Department of Health (NYDOH) found that residents of a New York community were exposed to MTBE in their drinking water, and the NYDOH study authors observed a statistically significant increased level of leukemia in this community.

G. For over 24 years as the NC State Toxicologist I have evaluated thousands of private well water and public drinking water supplies contaminated by MTBE in NC. Based on these investigations, I have observed that human exposure to MTBE contaminated drinking water can result in non-cancer adverse effects as well as cases where MTBE may have been linked to cancer in people exposed to MTBE contaminated drinking water.

² ATSDR – Cancer Policy Framework, January, 1993; and, ATSDR – Cancer and the Environment, April, 2010.

Exhibit 4

John B. O'Brien

Page 1

UNITED STATES DISTRICT COURT

SOUTHERN DISTRICT OF NEW YORK

IN RE: METHYL TERTIARY BUTYL) Master File
ETHER ("MTBE") PRODUCTS) No. 1:00-1898
LIABILITY LITIGATION) No. M21-88
-----) MDL 1358 (SAS)
This Document Relates to:)
COMMONWEALTH OF PUERTO RICO,)
et al.,)
Plaintiffs,) CASE NO.
-vs-) 07-CIV-10470
SHELL OIL CO., et al.,) (SAS)
Defendants.)

The videotaped deposition of JOHN B. O'BRIEN, called for examination, taken pursuant to the Federal Rules of Civil Procedure of the United States District Courts pertaining to the taking of depositions, taken before CORINNE T. MARUT, CSR No. 84-1968, a Certified Shorthand Reporter of the State of Illinois, at the law offices of Eimer Stahl, LLP, 224 South Michigan Avenue, Suite 1100, Chicago, Illinois, on May 30, 2014, at 9:06 a.m.

John B. O'Brien

Page 102	Page 104
<p>1 it's some of the other volatile compounds as well. 2 The next ones down are pentanes. If you have a 3 real hot day, some of those can evaporate. So, 4 those are called volatile organic compounds. 5 So, to reduce those in the air, they put 6 limitations on the volatility. When they put 7 limitations on the volatility, it meant that 8 refiners had to remove some of those from the 9 gasoline in order to meet the requirements. 10 Q. And when the refiners -- could they -- 11 could they refine gasoline without butane? 12 A. Yes. 13 Q. And did they refine -- let me ask it 14 this way. 15 <u>Could they refine gasoline without</u> 16 <u>producing any butane?</u> 17 <u>A. No, butane's produced as a part of the</u> 18 <u>refining process.</u> 19 <u>Q. Okay.</u> 20 <u>A. In the processes, we talked about</u> 21 <u>reformers, they produce some butane out of the</u> 22 <u>reformer. And some of that butane you can put back</u> 23 <u>into gasoline, but it was -- it became very</u> 24 <u>stringent in terms of how much you could use.</u></p>	<p>1 <u>feedstock for -- could then crack it and make</u> 2 <u>things like ethylene and butylene and so forth.</u> 3 <u>So, there were a number of other uses</u> 4 <u>for it.</u> 5 <u>Q. Okay. And without manufacturing MTBE,</u> 6 <u>were refineries able to dispose of the excess</u> 7 <u>butane that they had to remove from gasoline?</u> 8 <u>MS. MEYER: Objection; form.</u> 9 <u>BY THE WITNESS:</u> 10 <u>A. There were always some outlets for it,</u> 11 <u>but to the extent -- but you would like to be able</u> 12 <u>to put it in gasoline because gasoline was a more</u> 13 <u>valuable place for it. So, if you could find a way</u> 14 <u>to put it back in gasoline, that was great.</u> 15 <u>Otherwise you had to, as I said, these</u> 16 <u>other uses were lower-valued uses for it.</u> 17 Q. Okay. And was that one of the drivers 18 behind the exploration of or creation of MTBE was a 19 way to bring that butane back into the gasoline 20 pool? 21 MS. MEYER: Objection; misstates testimony. 22 BY THE WITNESS: 23 A. It helped -- it helped the gasoline 24 volume. You could make more gasoline if you could</p>
Page 103	Page 105
<p>1 <u>particularly in these warm states, you know, in the</u> 2 <u>summertime, places like Arizona and southern</u> 3 <u>California and so forth were, you know, particular</u> 4 <u>problems.</u> 5 Q. If they couldn't use the butane, put it 6 back into the gasoline, what would the refiners do 7 with that excess butane? 8 MS. MEYER: Objection; calls for speculation. 9 BY THE WITNESS: 10 A. Well, they -- they -- they could -- they 11 could do a number of things with it. 12 They could burn it in the refinery as 13 refinery fuel, but that was a fairly low-value use 14 for it. You much rather put it in gasoline if you 15 could so you could burn it. That was number one. 16 You could export it as butane outside 17 the U.S. to outside sources. 18 You could -- you could sell it as a 19 liquefied petroleum gas where it was needed, for 20 example, in -- I lived in the Northeast for quite a 21 number of years. I -- I used LPG as a -- to -- for 22 hot water, hot water use. It's used a lot in 23 agriculture, LPG. So you could sell it as LPG. 24 Or you could sell it as a petrochemical</p>	<p>1 take those butanes and find something to do with 2 them to get them back into the gasoline pool. So, 3 you could increase your volume and you could do it 4 by making it into MTBE. You could do it without 5 raising the vapor pressure, which was the problem 6 with butanes. 7 BY MS. O'REILLY: 8 Q. And you didn't have to buy butane from a 9 third-party supplier? 10 A. There were some butanes available at the 11 refinery, but they were not available in enormous 12 volumes. So, most of the butane comes from the 13 production of natural gas. You process the natural 14 gas and you take the butanes and the propanes and 15 sometimes even the ethane, you take it out and use 16 it for other purposes. 17 And, so, the real -- the real 18 availability of it was from natural gas production, 19 which we produced a lot of natural gas in the U.S. 20 So, a lot of that butane that was even available 21 from natural gas could be brought into the gasoline 22 pool. It helped increase the volume. 23 The only other way -- if you needed more 24 gasoline, the only other way to do it would be to</p>

27 (Pages 102 to 105)

John B. O'Brien

<p style="text-align: right;">Page 106</p> <p>1 run more crude oil and that costs a lot more. So,</p> <p>2 it was a nice fit I guess -- MTBE was a nice fit</p> <p>3 for the fact that we were going to have to dispose</p> <p>4 of these butanes elsewhere and here was a place we</p> <p>5 could get it back into the gasoline pool.</p> <p>6 Q. Okay. On page 17 you talk about "The</p> <p>7 Dawn of the RFG Era" and the 1990 Clean Air Act</p> <p>8 amendments. Correct?</p> <p>9 A. Yes.</p> <p>10 Q. Paragraph 36.</p> <p>11 A. Yes.</p> <p>12 Q. <u>Was at any time Puerto Rico subject to</u></p> <p>13 <u>the RFG gasoline requirements?</u></p> <p>14 A. <u>No.</u></p> <p>15 Q. <u>So, oxygenates were not required in</u></p> <p>16 <u>gasoline distributed in Puerto Rico?</u></p> <p>17 MS. MEYER: <u>Objection; form.</u></p> <p>18 BY THE WITNESS:</p> <p>19 A. <u>That is correct.</u></p> <p>20 BY MS. O'REILLY:</p> <p>21 Q. Okay. Did any of the on-island</p> <p>22 suppliers to your knowledge manufacture RFG</p> <p>23 gasoline that was exported from Puerto Rico?</p> <p>24 A. I don't think so, but I don't know</p>	<p style="text-align: right;">Page 108</p> <p>1 refineries utilize MTBE, after the implementation</p> <p>2 of Clean Air Act amendments, did they utilize MTBE</p> <p>3 to manufacture conventional gasoline?</p> <p>4 MS. MEYER: Objection; vague and ambiguous as</p> <p>5 to the general reference to "Gulf Coast</p> <p>6 refineries."</p> <p>7 BY THE WITNESS:</p> <p>8 A. Well, let me -- let me first say that I</p> <p>9 did not do any investigation into that in the</p> <p>10 course of this work.</p> <p>11 I do know from prior work that I've done</p> <p>12 that some refiners did use some MTBE as an octane</p> <p>13 enhancer in conventional gasolines from time to</p> <p>14 time depending on their particular circumstances in</p> <p>15 their refinery.</p> <p>16 So, they may have used some as an octane</p> <p>17 enhancer at lower levels than were required in the</p> <p>18 RFG program.</p> <p>19 Now, which ones used it and which ones</p> <p>20 didn't, you know, MTBE was -- was expensive,</p> <p>21 particularly at the beginning when they first</p> <p>22 started making it.</p> <p>23 And, so, I think it -- they tended to --</p> <p>24 because there was a limited amount of oxygenate</p>
<p style="text-align: right;">Page 107</p> <p>1 whether they -- I don't know that, but I don't</p> <p>2 think so.</p> <p>3 Q. Okay. I want to talk for a minute about</p> <p>4 the on -- off-island suppliers, in particular, the</p> <p>5 U.S. Gulf Coast refiners.</p> <p>6 Do you know whether any of those</p> <p>7 refiners based on your experience or knowledge were</p> <p>8 manufacturing, once the Clean Air Act amendments</p> <p>9 came into place, whether they were manufacturing</p> <p>10 non-RFG gasoline?</p> <p>11 MS. MEYER: Objection; vague and ambiguous.</p> <p>12 BY THE WITNESS:</p> <p>13 A. Let me be sure I understand the</p> <p>14 question. The Gulf Coast refiners?</p> <p>15 Q. Correct.</p> <p>16 A. Were any of them manufacturing non-RFG</p> <p>17 gasoline afterwards? Absolutely.</p> <p>18 There were -- there were only certain</p> <p>19 areas that required RFG. So, most of the larger</p> <p>20 refiners on the Gulf Coast, not only did they have</p> <p>21 to make some RFG for supply to those RFG areas, but</p> <p>22 they typically had to make conventional gasoline as</p> <p>23 well for the non-RFG areas.</p> <p>24 Q. In your experience did those Gulf Coast</p>	<p style="text-align: right;">Page 109</p> <p>1 available, in fact, there were concerns that we</p> <p>2 were going to have enough to meet the RFG program,</p> <p>3 I think most of the oxygenate that was produced</p> <p>4 would have gone into RFG and the convention --</p> <p>5 rather than in the conventional gasoline.</p> <p>6 It doesn't mean that some refiners might</p> <p>7 not have used some as an octane enhancer.</p> <p>8 Q. To your understanding, what did the Gulf</p> <p>9 Coast refineries utilize as an octane enhancer, if</p> <p>10 any, to replace lead?</p> <p>11 MS. MEYER: Objection again to the vague and</p> <p>12 ambiguous reference to "Gulf Coast refineries."</p> <p>13 BY THE WITNESS:</p> <p>14 A. Each -- each Gulf Coast -- each refinery</p> <p>15 makes its own decisions regarding what's the best</p> <p>16 way to blend gasoline.</p> <p>17 And there were -- there were some other</p> <p>18 options for -- for changing refinery</p> <p>19 configurations, adding new units, operating</p> <p>20 refineries differently, in order to try and</p> <p>21 increase the octane of the overall pool. I think I</p> <p>22 mentioned some of those options in my report.</p> <p>23 Although they were limited at a lot of refineries</p> <p>24 without a lot of additional investment.</p>

28 (Pages 106 to 109)

John B. O'Brien

Page 110	Page 112
<p>1 But you could -- you could -- you could</p> <p>2 increase the octane of the pool by doing some other</p> <p>3 things.</p> <p>4 Q. <u>Do you intend to offer any opinions in</u></p> <p>5 <u>this matter that any of the U.S. Gulf Coast</u></p> <p>6 <u>refineries which supplied Puerto Rico had to use</u></p> <p>7 <u>MTBE as an octane enhancer to manufacture</u></p> <p>8 <u>conventional gasoline exported to Puerto Rico?</u></p> <p>9 A. <u>I don't intend to offer any opinions</u></p> <p>10 <u>with respect to that and I didn't look at any</u></p> <p>11 <u>individual refineries and how they made their</u></p> <p>12 <u>decisions as to how to make reformulated gasoline</u></p> <p>13 <u>or conventional gasoline.</u></p> <p>14 Q. On the next page, paragraph 41 on</p> <p>15 page 19, paragraph 40 and 41 -- first of all, what</p> <p>16 does RFS stand for?</p> <p>17 A. Renewable fuel standard.</p> <p>18 Q. And I believe in that paragraph you</p> <p>19 indicate that the renewal fuel standard has</p> <p>20 resulted in the use of ethanol in both RFG and</p> <p>21 conventional gasoline, correct?</p> <p>22 A. That is correct.</p> <p>23 Q. Okay. Was -- but in the next paragraph,</p> <p>24 as I understand it, Puerto Rico opted out of the</p>	<p>1 of the RFS, do you know if as of 2005 ethanol was</p> <p>2 in any gasoline distributed to Puerto Rico?</p> <p>3 A. No, I don't know.</p> <p>4 Q. Page 20 talks about "MTBE Sources and</p> <p>5 Manufacture." We covered a little bit of this.</p> <p>6 Was -- did any of the companies or</p> <p>7 gasoline suppliers on-island in Puerto Rico</p> <p>8 manufacture MTBE?</p> <p>9 A. Not to my knowledge.</p> <p>10 Q. Do you know who the suppliers were of</p> <p>11 MTBE that was utilized by any of the on-island</p> <p>12 suppliers -- manufacturers?</p> <p>13 A. I think I -- I read in someone's</p> <p>14 deposition was asked a similar question, and I</p> <p>15 can't remember who it was right now, but I think</p> <p>16 they talked about various suppliers of MTBE.</p> <p>17 I can't remember their names right now,</p> <p>18 but I think they were the ones that -- there were</p> <p>19 some -- there were some suppliers -- some</p> <p>20 refineries that supplied MTBE from their -- from</p> <p>21 their MTBE plants at the refineries and there were</p> <p>22 also some merchant suppliers of MTBE. I can't</p> <p>23 remember the names right now. There were six or</p> <p>24 eight of them that were mentioned.</p>
Page 111	Page 113
<p>1 renewal fuel standard program?</p> <p>2 A. Yes. That's my understanding.</p> <p>3 Q. In a footnote you say, "There is no</p> <p>4 evidence that during the Relevant Period, ethanol</p> <p>5 was blended into gasolines supplied for use in</p> <p>6 Puerto Rico."</p> <p>7 Do you see that?</p> <p>8 A. Yes.</p> <p>9 Q. And -- and what is -- what evidence are</p> <p>10 you referring to?</p> <p>11 A. I'm not referring --</p> <p>12 MS. MEYER: Objection; misstates the opinion</p> <p>13 in 25, footnote 25. Sorry. Go ahead.</p> <p>14 BY THE WITNESS:</p> <p>15 A. I'm not referring to any evidence. I'm</p> <p>16 saying there is no evidence that I found that</p> <p>17 anybody ever blended any ethanol.</p> <p>18 I think you asked me that question or a</p> <p>19 similar question earlier and I said I -- I didn't</p> <p>20 know of anyone that ever blended any. So I'm</p> <p>21 simply stating it again.</p> <p>22 I didn't see anything that said that</p> <p>23 anyone ever blended any ethanol in Puerto Rico.</p> <p>24 Q. Okay. And because Puerto Rico opted out</p>	<p>1 Q. With respect to CORE, do you have an</p> <p>2 opinion on who supplied the MTBE utilized by CORE</p> <p>3 for manufacture of gasoline distributed in</p> <p>4 Puerto Rico?</p> <p>5 A. Yeah, I think the one that I recall is I</p> <p>6 think -- I think Phillips supplied MTBE to -- to</p> <p>7 CORE. I think they were one of the -- one of the</p> <p>8 suppliers to CORE because that was owned by</p> <p>9 Phillips in the early stages. So, I think they</p> <p>10 supplied them with MTBE.</p> <p>11 Other than that, I can't recall the</p> <p>12 names of them, but they were in the record</p> <p>13 somewhere.</p> <p>14 Q. What about with respect to CAPECO. Do</p> <p>15 you have any opinions as to who supplied MTBE to</p> <p>16 CAPECO for use in blending of gasoline?</p> <p>17 MS. MEYER: Objection; outside the scope of</p> <p>18 the report.</p> <p>19 BY THE WITNESS:</p> <p>20 A. I recall discussion in one of the -- in</p> <p>21 one of the depositions about there were some cargos</p> <p>22 of MTBE that were delivered by Phillips that were</p> <p>23 shared between CORE and CAPECO.</p> <p>24 In other words, part of -- in order to</p>

29 (Pages 110 to 113)



UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

In Re: Methyl Tertiary Butyl Ether
("MTBE") Products Liability Litigation

Master File C.A. No. 1:00-1898 (SAS)
MDL 1358 (SAS)
M21-88
Case No. 07-CV-10470 (SAS)

This Document Applies to:

Commonwealth of Puerto Rico, et al. v. Shell Oil Co., et al.

EXPERT REPORT OF JOHN B. O'BRIEN

Date: April 7, 2014

large standalone plants along the U.S. Gulf Coast, where butane feedstock was readily and economically available. Some ethanol expansion also occurred in the Midwest, but it was at a severe disadvantage to MTBE in RFG areas because its use significantly raised the gasoline RVP. If a refiner chose to use ethanol to make RFG, it first had to make a specially formulated low RVP blend. Not only was this special blend more expensive to make, but many refiners did not have the capacity to produce it in large volumes. Thus, MTBE captured most of the RFG market and a good proportion of the remaining oxygenate demand. MTBE's high-octane rating was a significant factor in allowing refiners to adjust the quantities of other blending components to meet the stringent RFG requirements.

38. The Commonwealth has always been what is called a conventional gasoline market, and has never participated—voluntarily or involuntarily—in either the RFG program or the wintertime oxygenate program for CO non-attainment areas. Thus, any appearance of MTBE in gasoline supplied to Puerto Rico would have been related either to its use as an octane enhancer or to incidental contact with RFG gasoline at some point in the supply chain.

The Federal Renewable Fuel Standard (RFS)

39. During the early 2000s, due to changes in the regulatory landscape, including changing requirements under federal and state laws, suppliers gradually began to wind down their use of MTBE in favor of ethanol. Significant investments commenced in refinery process operations, as well as in the distribution and marketing infrastructure, to accommodate this transition. Although ethanol's octane rating was comparable to that of MTBE, its high RVP blending effects and its distribution and handling issues had to be overcome. Also, ethanol could not be used in as high a concentration as MTBE because of potential solvency and corrosion

issues in older motor vehicles.²²

40. In August 2005, the federal government passed the Energy Policy Act of 2005, incorporating the first RFS. Starting in May 2006, the RFS mandated that certain minimum volumes of ethanol be used annually in the U.S fuel supply and eliminated the requirement that oxygenates be used in RFG. The RFS was intended to reduce dependence on foreign oil through increased production of domestic renewable fuels. In December 2007, the Energy Independence and Security Act of 2007 further increased the RFS requirements for the blending of fuels from renewable sources. The effect of the current RFS has been to require the inclusion of 10 Vol.% of ethanol in virtually all gasoline marketed in the U.S., both RFG and conventional.²³ Ethanol has now become an essential component of the U.S. gasoline pool from both a regulatory and an octane enhancement standpoint.

41. According to the federal renewable fuels regulations, a U.S. territory has the option of being part of the RFS program or not.²⁴ Puerto Rico has chosen not to be part of the program.²⁵

V. THE HISTORICAL ROLE OF MTBE IN GASOLINE PRODUCTION

42. This section discusses the manufacture of MTBE, and the historical role that it played in U.S. gasoline production from its acceptance by the EPA as a suitable gasoline component in 1979, through to its discontinuance of use during the early 2000s.

²² For these reasons, ethanol was limited to a maximum of 10 Vol.% in any gasoline blend. MTBE had been permitted at up to 15 Vol.%.

²³ There remain a few small, isolated rural areas where non-ethanol blended conventional gasoline is still supplied.

²⁴ 42 U.S.C. § 7545(o)(2)(A)(ii).

²⁵ There is no evidence that during the Relevant Period, ethanol was blended into gasolines supplied for use in Puerto Rico.

Thomas C. Austin

Page 1

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

IN RE: METHYL TERTIARY BUTYL	Master File
ETHER ("MTBE") PRODUCTS	No. 1:00-1898
LIABILITY LITIGATION	MDL 1358 (SAS)
	M21-88

This Document Relates to:

Commonwealth of Puerto Rico,
et al.

v.

Shell Oil Co., et al.

Case No. 07-CIV-10470 (SAS)

_____ /

-- -- --
TUESDAY, APRIL 29, 2014
-- -- --

Videotaped Deposition of THOMAS C. AUSTIN,
expert witness, held at King & Spalding, LLP,
101 Second Street, Suite 2300, San Francisco,
California, beginning at 9:55 a.m., before Sandra
Bunch VanderPol, FAPR, RMR, CRR, CSR #3032

-- -- --

GOLKOW TECHNOLOGIES, INC.
877.370.3377 ph|917.591.5672 fax
Deps@golkow.com

Thomas C. Austin

<p style="text-align: right;">Page 50</p> <p>1 the -- the air quality monitoring network was really</p> <p>2 adequate to determine with certainty whether they</p> <p>3 were ever out of compliance.</p> <p>4 I saw many days for which there were no data</p> <p>5 collected. And so when you have gaps in the data, I</p> <p>6 can't be certain that they never violated the ambient</p> <p>7 air quality standards. But from the available data,</p> <p>8 there wasn't enough data to prove that they did</p> <p>9 violate.</p> <p>10 So it's -- it's somewhat of an uncertain</p> <p>11 situation because of the spotty nature of the air</p> <p>12 quality monitoring network.</p> <p>13 BY MR. MILLER:</p> <p>14 Q. Is the same true of carbon dioxide?</p> <p>15 A. There's no ambient air quality</p> <p>16 standard for carbon dioxane.</p> <p>17 Q. Is the same true for carbon monoxide?</p> <p>18 MR. DANLEY: Objection. Form.</p> <p>19 THE WITNESS: Same basic case. None of the</p> <p>20 data that are available show definite violations of</p> <p>21 the standard. But, again, there are holes in the</p> <p>22 database.</p> <p>23 BY MR. MILLER:</p> <p>24 Q. You described a third compound, and I</p> <p>25 had trouble getting it down in my notes. Was it</p>	<p style="text-align: right;">Page 52</p> <p>1 THE WITNESS: Again, that may seem like a</p> <p>2 simple question. But usually MTBE is going to be</p> <p>3 added to gasoline because of the alternatives that</p> <p>4 were available. It was the most reasonable</p> <p>5 alternative.</p> <p>6 It may have resulted in an increase in the</p> <p>7 cost of gasoline, but the increase in the cost of</p> <p>8 gasoline may have been less than some other</p> <p>9 alternative that would have required a hundred</p> <p>10 million dollars of capital investment, for example,</p> <p>11 in a particular refinery to try to achieve an octane</p> <p>12 target some other way.</p> <p>13 BY MR. MILLER:</p> <p>14 Q. Wasn't it your experience that the</p> <p>15 cost of gasoline went up in California about 20 cents</p> <p>16 a gallon when they added MTBE?</p> <p>17 MR. DANLEY: Objection. Outside the scope.</p> <p>18 THE WITNESS: The state Air Resources Board</p> <p>19 did an analysis that I'm reasonably certain concluded</p> <p>20 it was significantly less than that increase in cost.</p> <p>21 But that was an analysis based on the combined effect</p> <p>22 of adding MTBE and simultaneously doing a number of</p> <p>23 other things that were not adequately accommodated</p> <p>24 just by adding MTBE.</p> <p>25 ///</p>
<p style="text-align: right;">Page 51</p> <p>1 nitrogen dioxide?</p> <p>2 A. It was.</p> <p>3 Q. And would your answer be the same for</p> <p>4 that compound?</p> <p>5 MR. DANLEY: Objection. Form.</p> <p>6 THE WITNESS: No. For nitrogen dioxide,</p> <p>7 even though there were, again, holes in the data,</p> <p>8 there weren't any data indicating that a violation of</p> <p>9 the ambient air quality standards was at all likely.</p> <p>10 BY MR. MILLER:</p> <p>11 Q. If Puerto Rican air was based on</p> <p>12 available data fully compliant with air quality</p> <p>13 standards in the United States, are you of the</p> <p>14 opinion they should have spent money on MTBE, adding</p> <p>15 it to gasoline, to do better than any requirement?</p> <p>16 A. If they were concerned about the</p> <p>17 public's exposure to toxic air contaminants, there</p> <p>18 would have been a case to be made for requiring MTBE.</p> <p>19 Q. <u>Did anyone ever require MTBE's use in</u></p> <p>20 <u>Puerto Rico?</u></p> <p>21 A. <u>No.</u></p> <p>22 Q. When MTBE is added to gasoline, is it</p> <p>23 your experience that it increases the cost of</p> <p>24 gasoline to the consumer?</p> <p>25 MR. DANLEY: Objection. Outside the scope.</p>	<p style="text-align: right;">Page 53</p> <p>1 BY MR. MILLER:</p> <p>2 Q. Have you seen any published study</p> <p>3 that explains whether or not adding MTBE to gasoline</p> <p>4 in Puerto Rico increased the cost to the consumer at</p> <p>5 the pump?</p> <p>6 MR. DANLEY: Objection. Outside the scope.</p> <p>7 THE WITNESS: I have never attempted to</p> <p>8 identify such a study.</p> <p>9 BY MR. MILLER:</p> <p>10 Q. So you didn't consider that in</p> <p>11 forming any of your opinions in this case?</p> <p>12 A. It was unrelated to my opinions in</p> <p>13 this case.</p> <p>14 Q. Do you have any opinion that attempts</p> <p>15 to weigh all of the downsides to using MTBE in</p> <p>16 gasoline -- like the price to the consumer, the</p> <p>17 presence of MTBE in the air, or the presence of MTBE</p> <p>18 in groundwater -- to what you claim are air quality</p> <p>19 benefits?</p> <p>20 MR. DANLEY: Objection. Form.</p> <p>21 THE WITNESS: Are you saying do I have any</p> <p>22 analysis that attempts to account for all of those</p> <p>23 factors?</p> <p>24 MR. MILLER: Yes.</p> <p>25 THE WITNESS: I have not done an analysis</p>

14 (Pages 50 to 53)

Thomas C. Austin

Page 110	Page 112
<p>1 A. Correct.</p> <p>2 Q. Now, under the specific heading of</p> <p>3 CO, which is carbon monoxide -- correct? -- there's</p> <p>4 no data entered?</p> <p>5 A. Where are the --</p> <p>6 Q. It's on the right-hand portion of the</p> <p>7 graph.</p> <p>8 A. Oh, yes. Right. These values</p> <p>9 apparently are only for sulfur dioxide.</p> <p>10 Q. Did you review this report to see if</p> <p>11 there's any trend that shows improvement in air</p> <p>12 quality with the introduction of MTBE in gasoline --</p> <p>13 A. I did not.</p> <p>14 Q. -- in --</p> <p>15 A. I did not --</p> <p>16 MR. DANLEY: Let him finish.</p> <p>17 THE WITNESS: Okay.</p> <p>18 BY MR. MILLER:</p> <p>19 Q. -- in worse conditions before MTBE or</p> <p>20 after MTBE was removed?</p> <p>21 MR. DANLEY: Can I have that question read</p> <p>22 back, please.</p> <p>23 (Record read as follows: QUESTION: Did you</p> <p>24 review this report to see if there's any trend that</p> <p>25 shows improvement in air quality with the</p>	<p>1 Q. Now, you did use the EPA's computer</p> <p>2 program that you call MOVES, correct?</p> <p>3 A. Yes.</p> <p>4 Q. And MOVES wasn't -- strike that.</p> <p>5 MOVES was not released until April 23rd,</p> <p>6 2012, the model you used?</p> <p>7 A. That specific version. But there --</p> <p>8 it's just the next in a sequence of a long line of</p> <p>9 models that did essentially the same thing that date</p> <p>10 back to the 1980s.</p> <p>11 Q. Did you apply any of the models that</p> <p>12 were used during the time people were making</p> <p>13 decisions about using MTBE to any data for</p> <p>14 Puerto Rico --</p> <p>15 MR. DANLEY: Objection. Vague.</p> <p>16 BY MR. MILLER:</p> <p>17 Q. -- as opposed to a model that was</p> <p>18 developed after MTBE was no longer used?</p> <p>19 MR. DANLEY: Same objection.</p> <p>20 THE WITNESS: I didn't want to use a model</p> <p>21 which is currently outdated. MOVES is considered the</p> <p>22 best model for that past period of time. There have</p> <p>23 been improvements to it that made it more accurate --</p> <p>24 a more accurate tool for looking at emissions during</p> <p>25 the period of time of interest here.</p>
Page 111	Page 113
<p>1 introduction of MTBE in gasoline in worse conditions</p> <p>2 before MTBE or after MTBE was removed?)</p> <p>3 MR. DANLEY: Objection. Form.</p> <p>4 THE WITNESS: I didn't review this specific</p> <p>5 report for that purpose. I did review the detailed</p> <p>6 concentration data to see if there was a trend over</p> <p>7 time that indicated either stable or improving or</p> <p>8 increasing air pollution levels.</p> <p>9 BY MR. MILLER:</p> <p>10 Q. <u>And you can apply statistics to that</u></p> <p>11 <u>to see if any trend is meaningful, correct?</u></p> <p>12 A. <u>Not with respect to relating it to</u></p> <p>13 <u>MTBE, because there wasn't sufficient data available</u></p> <p>14 <u>to know the actual total amount of MTBE being used</u></p> <p>15 <u>consistent with any particular air quality monitoring</u></p> <p>16 <u>data.</u></p> <p>17 Q. <u>So you were unable to find any data</u></p> <p>18 <u>that showed an improvement in air quality in</u></p> <p>19 <u>Puerto Rico attributable to MTBE?</u></p> <p>20 MR. DANLEY: Objection. Mischaracterizes</p> <p>21 testimony.</p> <p>22 BY MR. MILLER:</p> <p>23 Q. <u>Is that correct?</u></p> <p>24 A. <u>There weren't sufficient data</u></p> <p>25 <u>available to do that specific analysis.</u></p>	<p>1 BY MR. MILLER:</p> <p>2 Q. Is MOVES, the version that you used,</p> <p>3 which is 2010B, the most current today?</p> <p>4 A. Yes, it is.</p> <p>5 Q. Has any independent scientific</p> <p>6 organization, apart from scientists employed by the</p> <p>7 EPA, ever determined that MOVES is accurate?</p> <p>8 MR. DANLEY: Objection. Vague.</p> <p>9 THE WITNESS: EPA has a very detailed and</p> <p>10 formal process that includes the use of basically a</p> <p>11 peer review panel of people, who are not employees of</p> <p>12 the EPA, who have reviewed the MOVES model and have</p> <p>13 basically agreed that it's an improvement in the</p> <p>14 state of the art over the previous models that were</p> <p>15 being used, which were called Mobile, and then some</p> <p>16 number to indicate what version it was.</p> <p>17 BY MR. MILLER:</p> <p>18 Q. Has any independent group publishing</p> <p>19 in the peer-reviewed literature said that MOVES, the</p> <p>20 version that you used, 2010B, is an accurate,</p> <p>21 reliable predictor?</p> <p>22 MR. DANLEY: Objection. Asked and answered.</p> <p>23 THE WITNESS: I have not done a search to</p> <p>24 see if anybody has come to that conclusion other than</p> <p>25 the -- literally the dozens of people who are expert</p>

PEARSON WATSON MILlican & Co.

CONSULTANTS • ENGINEERS • EXPERTS

SECOND AMENDED EXPERT REPORT IN THE MATTER OF

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

In Re: Methyl Tertiary Butyl Ether ("MTBE")
Products Liability Litigation

Master File No. 1:00-1898
MDL 1358 (SAS)
Case No. 07 Civ. 10470 (SAS)

COMMONWEALTH OF PUERTO RICO AND
COMMONWEALTH OF PUERTO RICO through the
ENVIRONMENTAL QUALITY BOARD (*Plaintiff*)

v.

SHELL OIL COMPANY, et al. (*Defendants*)

May 16, 2014

DEFENDANT ESSO STANDARD OIL COMPANY (PUERTO RICO)

C. David Millican
C. David Millican

Cesar A. Figueroa
Cesar A. Figueroa

700 Central Expressway South, Suite 425 Allen, TX 75013
(972) 578-7980

TABLE OF CONTENTS

I.	QUALIFICATIONS AND SCOPE OF WORK.....	4 -
	Qualifications of C. David Millican.....	4 -
	Qualifications of Cesar A. Figueroa.....	5 -
	Scope of Work.....	6 -
II.	SUMMARY OF KEY OPINIONS.....	7 -
III.	GASOLINE MANUFACTURE AND SUPPLY BACKGROUND.....	10 -
	Manufacturing.....	10 -
	Supply/Demand Overview.....	12 -
	On-Island Gasoline Production.....	14 -
	On-Island Terminals.....	21 -
	Import Supply.....	26 -
IV.	PUERTO RICO GASOLINE DISTRIBUTION & RETAIL SALES.....	28 -
	The Puerto Rico Supply Chain Is, In Practice, a Segregated Supply System.....	29 -
V.	ESSO PUERTO RICO GASOLINE SUPPLY.....	32 -
	ESSO Gasoline Receipts 1979 through June 1982.....	32 -
	ESSO Gasoline Receipts July 1982 through April 1992.....	33 -
	ESSO Gasoline Receipts May 1992 – January 1997.....	34 -
	ESSO Gasoline Receipts February 1997 – October 2008.....	35 -
	Esso Delivery to Esso Branded Stations.....	35 -
	ESSO Gasoline Sales 1979 - 2008.....	36 -
VI.	NON-ESSO TRIAL SITES AND PLAINTIFFS' CONTENTIONS.....	39 -
	The "Citgo" Storage and Handling Contract.....	39 -
	Esso Exchanges and Loans & Borrows.....	40 -
	"Shared" Shipments of Gasoline.....	42 -
	Non-Esso Plaintiff Trial Sites.....	42 -

The Bayamon Refinery (San Juan)

28. In 1979, the Bayamon refinery was owned by Caribbean Gulf Refining Corporation ("CGR").¹⁰ In addition to the refinery assets, CGR owned a deep water dock and connecting pipelines in the San Juan harbor and feed and product storage tanks located at the refinery site. The refinery had the capacity to import and refine about 38,000 barrels of crude oil per day. When fully operational, the Bayamon refinery had the capacity to produce about 15,000 to 20,000 bpd of gasoline for sale to Island customers.
29. From 1988 to 1992 the refinery operated under the ownership of Caribbean Petroleum Corporation ("CAPECO" or "CPC"). In 1992, the refinery ownership transitioned to Caribbean Petroleum Refining L.P. ("CPR"), an entity formed between CAPECO and Gulf Petroleum Refining Corporation (GPR).¹¹ Following the creation of CPR, the facility continued to be generally referred to as the CAPECO facility. Prior to its shutdown in April of 1995, the Bayamon refinery capacity to produce gasoline had grown to just over 20,000 bpd when fully operational.
30. Following the shutdown of the refinery processing units in 1995, the CAPECO facility was converted to a terminal and blending facility. In 1999, the refinery was restarted for a short period of time to process crude oil into fuel products. This last operation ceased in 2000. With the refinery shut down, CAPECO received products and blendstocks via the CAPECO docks, blended and stored finished products at the site, and sold finished products in the same manner as it had before the refinery ceased to operate.
31. After 1992, the gasoline blended by the Bayamon refinery is indicated to have contained no MTBE. For the period of 1990 through 1992, MTBE is indicated to have been on 4.9%, 5.3%, and 2.1% on average by volume, respectively.¹² It is most likely that the premium gasoline contained the bulk of the blended MTBE as the refinery needed the MTBE to meet the premium octane specifications.

¹⁰ Oil & Gas Journal dated December 25, 1978.

¹¹ XOM-PR-FILES-SUPP-545023

¹² XOM-PR-FILES-SUPP-542751

32. Below is an aerial overview of the CAPECO refinery facility circa 1994.



Guayama Petrochemical Facility

33. During the period of 1979 to November 2000, CORE operated a petrochemical facility located in Guayama. This same facility became known as Chevron Phillips Chemical Puerto Rico.¹³ The purpose of this facility was to produce specialty chemicals from a variety of units at the site. In doing so, low octane naphtha, a gasoline blend component, was produced as a by-product. This low octane naphtha could be blended with very high octane blend components to produce finished gasoline for sale

¹³ Deposition Transcript of Hector Antonio Marin Diaz dated August 21-22, 2013, CORE Exhibit No. 3.

in Puerto Rico. The documents indicate that, at times, CORE imported MTBE for blending into motor gasoline at the site.¹⁴

34. For this facility, the production records include details of the CORE gasoline production volume, amount of MTBE imported for blending, and sales to customers by grade of gasoline sold for the period of 1982 to 2000. On average for this period, CORE produced and sold about 16,000 bpd of gasoline to customers. Finished motor gasoline could be sold to customers via barge across the dock or via tanker truck across the truck loading rack at the CORE facility. Below is an aerial overview of the CORE facility circa 1994.



¹⁴ Deposition Transcript of Hector Antonio Marin Diaz dated August 21-22, 2013, Exhibit No. 16-17.

The Yabucoa Refinery

35. During the period of 1979 to 2001, the Yabucoa refinery facility was owned by Puerto Rico Sun Oil Company ("PRSOC").¹⁵ After a reformer unit was built in 1989, PRSOC barged reformate and other gasoline blendstocks to Peerless for blending from 1990 to 1997.¹⁶ After 1997, PRSOC only produced lubes base stocks¹⁷. Sunoco ceased operations at the refinery in July 2001 and later sold the facility to Shell Chemical Yabucoa, Inc. ("Shell Chemical"). Shell Chemical restarted refinery units in 2002 refining crude oil into fuels products, including gasoline.¹⁸ During the period of 2002 to mid-2008, Shell Chemical manufactured and sold finished motor gasoline for sale on the Island; the facility also imported finished gasoline for resale in this period. The sale of gasoline was accomplished via barge shipments across the docks and via tanker truck across the onsite truck rack. Bulk sales of gasoline across the docks averaged about 7,500 bpd while the facility was operating. From mid-2008 to 2010, the Yabucoa facility was operated as a terminal, importing gasoline for resale on the Island. Shell Yabucoa batch reports indicate the gasoline production from the Yabucoa facility did not contain MTBE. Shell Chemical has also indicated that no imports of finished gasoline contained more than *de minimis*¹⁹ levels of MTBE.²⁰

¹⁵ Unless otherwise noted, "PRSOC" refers to Puerto Rico Sun Oil Company and its predecessors and successors, such as Yabucoa Sun Oil Company. This report expresses no opinion concerning the relationship between these entities.

¹⁶ Deposition of L. Comas dated October 16, 2013, Exhibits 2 and 4.

¹⁷ XOM-PR-SUPP-513913

¹⁸ Lube Report, Industry News from Lubes-n-Greases, dated October 3, 2001.

¹⁹ *De minimis* levels of MTBE in Gasoline sold in Puerto Rico are those less than 0.5% by Volume; Enmienda Al "Reglamento De Precios Num. 45 Sobre Control De Precios De Vent A De Combustibles En Puerto Rico", Expediente Numero 7721; Approved May 11, 2012.

²⁰ Responses Of Shell Chemical Yabucoa, Inc. To Plaintiffs' First Set Of Interrogatories And Request For Production Of Documents To Defendants Regarding Supply And Distribution dated August 8, 2013

affiliate. This operation continued until early 1996.²⁵ Since the mid-1990s, Peerless has continued the terminal operation to blend gasoline for sale to customers on the Island.

The Bayamon (San Juan) Terminal Facilities

47. With the CAPECO refinery running normally, the facility was able to use the hydrocarbon storage tanks, dock facilities, connecting pipelines, and truck rack to receive feedstocks and sell finished products to customers in Puerto Rico. Following the shutdown of the CAPECO refinery processing units in 1995, the CAPECO facility was converted to a terminal and blending facility. With the refinery no longer producing fuel products, CAPECO began to receive products and blendstocks via the CAPECO docks, blended and stored finished products at the site, and sold finished products in the same manner as it had before the refinery ceased to operate. Documents indicate that for the period of 1995 through 1999, the gasoline production by CAPECO contained 0.0% MTBE and less than 0.5% by volume in the first half of 2000.²⁶
48. In May 1992, Esso entered into a storage agreement with CAPECO. Under the agreement, CAPECO was to make available 150 kbbbls of tank storage capacity for premium and possibly regular. Esso had the right to have marine receipts delivered to the Esso tanks leased at CAPECO then have CAPECO later deliver the gasoline to the Esso terminal tanks.²⁷

The Guayama Terminal Facilities

49. Associated with the CORE facility in Guayama were hydrocarbon storage tanks, docks, and truck racks to be used to receive gasoline blending components and blend finished gasoline for sale to CORE customers. The very low octane naphtha produced by CORE was blended with very high octane blend components to produce

finished gasoline. Finished motor gasoline could be sold to customers via barge across the dock or via tanker truck across the truck loading rack at the CORE facility. The terminalling facilities were used to blend and ship an average of about 16,000 bpd of gasoline to CORE customers during the 1982-2000 time period.²⁸

The Yabucoa Terminal Facilities

50. Associated with the Yabucoa refinery were hydrocarbon storage tanks, docks, and truck racks to be used to receive gasoline blending components and blend finished gasoline for sale to Yabucoa customers. The Yabucoa refinery did not produce gasoline until after a reformer unit was built in 1989. From 1990-1997, PRSOC barged reformat and other gasoline blendstocks to Peerless for blending. Sunoco ceased operations at the refinery in July 2001.²⁹ The Yabucoa refinery and terminal facilities were sold to Shell Chemical Yabucoa, Inc. ("Shell Chemical").
51. Shell Chemical restarted refinery units and terminal facilities in 2002.³⁰ During the period of 2002 – mid-2008, Shell Chemical manufactured gasoline and sold finished motor gasoline via barge shipments across the docks and via tanker truck across the onsite truck rack. Bulk sales of gasoline across the docks averaged about 7,500 bpd while the facility was operating. After the shutdown of the Yabucoa refinery in mid-2008, the terminal facilities continued to operate, being used to import gasoline for resale on the Island. Shell Yabucoa batch reports indicate the gasoline production from the Yabucoa facility did not contain MTBE.

Import Supply

52. After the shutdown of the CORCO refinery in 1982, gasoline imports began to rise in order to meet the consumption demand on the Island. Imports could be brought into Puerto Rico via any of the terminal locations discussed above. The EIA has received

²⁵ www.peerlessoil.com/htm/history.html.

²⁶ XOM-PR-FILES-SUPP-542749-542752.

²⁷ XOM-PR-FILES-SUPP-488499-488513.

²⁸ Deposition Transcript of Hector Antonio Marin Diaz dated August 21-22, 2013, Exhibit No. 41.

²⁹ XOM-PR-SUPP-513913.

³⁰ Lube Report, Industry News from Lubes-n-Greases; dated October 3, 2001.

party or intermediary at one location while receiving an equivalent gasoline product from the other party or intermediary at another location. Exchange agreements may also be fashioned so as to exchange products which are not generally equivalent. These types of exchange agreements also then include a discount or premium payment to one of the two parties. As with the loan and borrow agreements, the fact these exchange agreements existed between certain on-Island parties, does not indicate a highly fungible system being operated on the Island.

64. Another example of why the Puerto Rico gasoline supply chain is not a highly fungible system is evidenced by the on-Island octane competition that began in the early 1990's. The majors on the Island began offering higher octane premium gasoline to customers in a marketing attempt to distinguish their brand and gain market share. A 93 octane unleaded premium was introduced by Esso, Shell, & Texaco early in the period while all the others continued with offering a 91 octane premium. Later, Shell introduced an 89 octane unleaded regular while the others in the market continued to offer the 87 octane unleaded regular.³⁶

65. The fact that these companies began offering very different octane levels on the same grade of gasoline, the grade being unleaded regular or premium, is reason to have operated separately of one another. Great care had to be taken to isolate higher octane gasoline from lower octane gasoline so as to prevent any mixing that would lower the octane to a number below that posted at the retail outlet. Allowing such a situation to occur and be discovered would have had an undesirable impact on the parties involved. As a consequence of the different octane offerings to the market, the suppliers were driven to maintain segregation of the different regular and premium products and limit loaning of gasoline products.

³⁶ www.peerlessoil.com/htm/history.htm

V. ESSO PUERTO RICO GASOLINE SUPPLY

66. Referring back to Figure 1, it can be observed that the production facilities and terminals are located generally on the North and South coasts of the Island. Over the relevant time period of 1979 through October 2008, Esso generally worked to supply retail sites on the North side of the Island from Cataño and retail sites on the South from the CORCO terminal or, prior to that, the Guayama racks.

67. The nature of the Esso supply contracts and actual receipts from the on-Island and off-Island suppliers lends itself to discussing the Esso receipts in four separate time periods. These breakpoints have been selected as they represent significant milestones in the supply of gasoline to Esso. These time periods are:

- a) 1979 through June 1982
- b) June 1982 through April 1992
- c) May 1992 through January 1997
- d) February 1997 through October 2008

68. Exhibit 1 is an overview of the gasoline suppliers to Esso for the above time periods and will be used as an illustrative guide to assist with the following discussion of the above time periods in detail.

ESSO Gasoline Receipts 1979 through June 1982

69. During the period of 1979 through June of 1982, the records indicate that CORCO was the primary Esso supplier of gasoline at the terminal in Cataño³⁷. CORCO supplied leaded and unleaded gasoline via the eight inch pipeline from CORCO owned by The Pipeline of Puerto Rico and via barge into the to the Esso terminal located in the Cataño terminal area. We have reviewed no evidence indicating that MTBE was used as a gasoline blendstock by CORCO for any of the deliveries to Esso at Cataño. Also, Mr. Carlos Mendez has indicated that to his knowledge, no MTBE

³⁷ XOM-PR-FILES-SUPP-718176-718202

Exhibit 5

- MACIULA -

Page 1

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

IN RE: METHYL TERTIARY BUTYL *
ETHER ("MTBE") PRODUCTS
LIABILITY LITIGATION *

Master File
No. 1:00-1898

COMMONWEALTH OF PUERTO RICO, *
et al.,

MDL 1358 (SAS)
M21-88

Plaintiffs,

vs.

SHELL OIL CO., et al.,

Defendants.

Case No. 07-CIV-10470 (SAS)

The videotaped deposition of:

EDWARD A. MACIULA,

former Peerless Oil & Chemicals, Inc., General Manager,
and a Non-Party Witness herein, was held at the law
offices of SANCHEZ-BETANCES, SIFRE & MUNOZ-NOYA,
33 Bolivia Street, Fifth Floor, San Juan, Puerto Rico
00917, on Wednesday, October 22, 2014, at 9:05 a.m.

- MACIULA -

Page 53

1 contract with Sunoco?

2 **A. The contract for the LSR, yes.**

3 Q. What do you mean by "the contract for the
4 LSR"?

5 **A. Well, there was a second contract for
6 loading trucks and we also provided an outlet for the
7 gasoline by putting it into trucks.**

8 Q. So was it your understanding--let's focus
9 on the contract for blending and providing finished
10 gasoline. Was it your understanding that it was
11 Peerless' obligation to provide the LSR?

12 **A. The LSR part of the deal was, I think,
13 Sun's way of enticing us to enter the contract, because
14 we needed an outlet for that stuff.**

15 Q. Okay. And what's that understanding based
16 on? How did you gain that understanding?

17 **A. It solved more problems for us. You know,
18 they needed the loading rack somewhere, we needed an
19 outlet for the LSR. That was kind of the-- you know,
20 the reward for us. You know, it wasn't a big profit
21 generator as far as, you know, providing the service
22 and, you know, going through the permitting and all
23 that.**

24 Q. Did Peerless, other than the-- you talked
25 about the permitting of the loading racks. Did

joannedethomas@yahoo.com (787) 501-3007

- MACIULA -

Page 55

1 up.

2 Q. Was that because Peerless was able to, in
3 your mind, prepare gasoline for Sunoco without the use
4 of MTBE? Is that correct?

5 **A. Yeah. We had the components necessary to**
6 **blend a specification product. We didn't-- and didn't**
7 **need to look further.**

8 Q. Once-- once you switched over to-- in '94
9 to the processes described in Exhibit 3, and I just
10 want-- I'm just trying to make sure I understand your
11 testimony earlier, once you pulled out the light and
12 heavy to make the gasoline, at any time after you
13 engaged in that process, did you have a need for MTBE,
14 or any other component, blending component, to finish
15 the gasoline for Sunoco?

16 **A. Well, after that point we had no role in**
17 **the blending of the product, you know. We took what**
18 **was delivered to us from them.**

19 Q. Okay. Processed it, it went into a tank,
20 and went out as finished gasoline?

21 **A. Yeah. We-- yeah.**

22 Q. Okay. And you didn't-- you didn't blend
23 in any more naphtha or LSR?

24 **A. Other than-- other than-- you know, my**
25 **recollection is at one point we did have a delivery of**

joannedethomas@yahoo.com (787) 501-3007

- MACIULA -

Page 54

1 Peerless have to obtain any other permits when it
2 entered into the contract with Sunoco for blending the
3 naphtha and reformat?

4 **A. No. We had a refiner's permit.**

5 Q. And so the blending was covered by that
6 permit?

7 **A. I believe so.**

8 Q. Were you involved at all in the permitting
9 process, like checking to make sure that the refiner's
10 permit covered the contract with Sunoco?

11 **A. Yes.**

12 Q. So you verified that?

13 **A. Yes.**

14 **MS. O'REILLY: (To the reporter) Just to**
15 **make sure, you did mark all that.**
16 **(Whereupon, the reporter nods.)**

17 **BY MS. O'REILLY:**

18 Q. Now, as we discussed earlier, the blending
19 contract with Sunoco does mention MTBE, correct?

20 **A. That's my understanding. Yeah.**

21 Q. Did Peerless itself have any restrictions
22 on or permit issues with the use of MTBE at the
23 terminal or refinery during the time period that you
24 were blending product for Sunoco?

25 **A. I don't think so. I mean, it never came**

joannedethomas@yahoo.com (787) 501-3007

- MACIULA -

Page 56

1 **a low octane cargo from somewhere in the Caribbean.**

2 Q. And what do you mean by "a low octane
3 cargo"?

4 **A. It was blended with regular to the limit**
5 **of the octane.**

6 Q. Well, let me back up a minute. When you
7 say "low octane cargo," a low octane cargo of what?

8 **A. I'm-- it was called "natural gasoline,"**
9 **which is similar to LSR, except that it's usually from**
10 **a gas field, you know, which the-- you know, there**
11 **are-- there are gas fields all over the place that**
12 **have-- have, you know, a natural-gasoline type**
13 **component that comes off. They fractionate their gas**
14 **and, you know, the methane goes into a pipeline and the**
15 **other stuff has to be, you know, either sold locally**
16 **or, in the case of this stuff, it was on the water and**
17 **they probably picked it up cheap.**

18 Q. And then what did Peerless do to increase
19 the octane of that cargo?

20 **A. It was just blended in with the octane**
21 **giveaway product that we made off the unit.**

22 Q. And it was blended in like one of the
23 field tanks?

24 **A. Uh-huh.**

25 Q. "Yes"?

joannedethomas@yahoo.com (787) 501-3007

- MACIULA -

Page 57

1 **A. Yes, it was. Sorry.**

2 Q. That's okay.

3 And was that the only instance you recall after
4 '94 when you needed to do any additional processing to
5 a product that Peerless was providing to Sunoco?

6 **A. It's the only one I recollect by, you**
7 **know, being able to kind of describe it, and I haven't**
8 **done a very good job of that either, but...**

9 Q. So after '94, would it be fair to say in
10 your testimony that in your opinion MTBE was not needed
11 to process gasoline for Sunoco?

12 MR. MAHER: Objection to form.

13 THE DEPONENT: Yeah. I can't-- I can't
14 think that it was ever needed. You know, the
15 oxygenates were kind of a creature of the U.S.,
16 you know, and then Puerto Rican requirements
17 don't-- don't have that yet.

18 BY MS. O'REILLY:

19 Q. When you say "that," you mean oxygenates.

20 **A. They don't require oxygenates in the**
21 **blend.**

22 Q. Was the-- going back to Exhibit 3, was
23 this process ever modified between '94 and the end of
24 the contract with Sunoco?

25 **A. Not materially. I mean, you know, we**

joannedethomas@yahoo.com (787) 501-3007

- MACIULA -

Page 58

1 **tweaked it here and there to improve instrumentation**
2 **and control and safety, but there were-- you know,**
3 **there were no-- it was a straight distillation with a**
4 **heartcut.**

5 Q. Did Peerless ever utilize this process for
6 anyone other than Sunoco?

7 **A. No.**

8 Q. I think you answered this already. So it
9 would be fair to say that this contract with Crossland
10 & Boiler and this creation of this process flow diagram
11 was part of Peerless' contract with Sunoco, correct?

12 MR. KRAININ: Objection to the form.

13 THE DEPONENT: Yeah. That was-- that was
14 why we did it.

15 BY MS. O'REILLY:

16 Q. So other than-- we've talked about, you
17 know, constructing the loading racks with the additive
18 tanks, preparing this process flow diagram,
19 implementing this process flow.

20 Is there anything else that you can think of
21 that Peerless did in order to fulfill its contracts
22 with Sunoco?

23 **A. Well, at the end of the contract we**
24 **transitioned, you know, from supplying product for Sun**
25 **to supplying or handling and loading trucks for the**

joannedethomas@yahoo.com (787) 501-3007

- MACIULA -

Page 59

1 **clients of Sun, who Sun helped us, they facilitated the**
2 **transition, because the people liked their experience**
3 **loading trucks at our place. So the-- basically, we**
4 **transitioned from Sun selling products to them to them**
5 **terminaling products at our place and lifting from**
6 **Peerless.**

7 Q. And just for the record, when you say
8 "lifting," you mean trucks coming in to the loading
9 rack.

10 **A. The trucks. Yeah, the trucks removed the**
11 **product.**

12 Q. Do you recall did-- during the time period
13 when Peerless had the contract with Sunoco, the
14 terminaling contract, did Peerless provide all of the
15 gasoline that Sunoco distributed from the Peerless
16 terminals?

17 **A. Did Peerless provide it all?**

18 Q. Right.

19 **A. We loaded it all.**

20 Q. Well, I'm talking about the physical
21 gasoline.

22 **A. Everything they sold as gasoline came out**
23 **of our-- our terminal.**

24 Q. Okay.

25 **A. Now, I think, you know, at the end, when**

joannedethomas@yahoo.com (787) 501-3007

- MACIULA -

Page 60

1 **they shut their refinery in Yabucoa down, they still**
2 **owed some gasoline to the-- you know, their customers**
3 **and they brought in gasoline and we loaded it for them,**
4 **because we still had the rack.**

5 Q. Okay. Well, let me ask it this way.

6 During the time period that Peerless had its
7 agreements with Sunoco, was it your understanding that
8 all of the gasoline Sunoco provided to its customers
9 came from Peerless?

10 **A. Uh-huh.**

11 Q. "Yes"?

12 **A. Yes. Yes.**

13 Q. Okay. So you don't recall if gasoline
14 came in on barges or tankers from some source other
15 than Peerless.

16 **A. Oh. Well, it would have had to come in**
17 **from someone else because we weren't manufacturing**
18 **gasoline once their reformer was shut down.**

19 Q. But before the reformer was shut down,
20 based on your experience, do you recall if Peerless
21 supplied all of Sunoco's requirements or if any
22 gasoline was shipped from anywhere else?

23 MR. SANCHEZ: Objection to form.

24 Unintelligible.

25 THE DEPONENT: What are you saying? What

joannedethomas@yahoo.com (787) 501-3007

FILED UNDER SEAL

Freddy Flores

Page 1

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

-----§
IN RE: METHYL TERTIARY BUTYL §
ETHER ("MTBE") PRODUCTS §
LIABILITY LITIGATION, § Master File No.
§ 1:00-1898
§ M21-88
§ MDL 1258(SAS)
§
This document relates to: §
§
COMMONWEALTH OF PUERTO RICO, §
et al., § Case No.
§ 07-civ-10470 (SAS)
§
Plaintiff, §
vs. §
§
SHELL OIL COMPANY, et al., §
§
Defendants. §

- - -

OCTOBER 2, 2013

- - -

Videotaped deposition of FREDDY FLORES, held at
Ron Fleming Video Productions, 1512 East Concord
Street, Orlando, Florida 32803, commenting at
9:10 a.m., on the above date, before Joan L. Pitt,
Registered Merit Reporter, Certified Realtime
Reporter, and Florida Professional Reporter.

- - -

GOLKOW TECHNOLOGIES, INC.
877.370.3377 ph|917.591.5672 fax
deps@golkow.com

Freddy Flores

<p style="text-align: right;">Page 38</p> <p>1 naphtha from, depending on where you bought it, varied.</p> <p>2 But by the time the by-product got to you to make</p> <p>3 finished gasoline, did that matter at all?</p> <p>4 A. It might be, because as I told you before,</p> <p>5 motor fuel reformat was my base stock to blend</p> <p>6 gasoline, and that's why we had to test motor fuel</p> <p>7 reformat every day, every day, every day, because the</p> <p>8 variation came out of the -- what type of feedstock, the</p> <p>9 process, the unit.</p> <p>10 Q. Now, did, for example, the chemical makeup of</p> <p>11 MTBE have any variance in it?</p> <p>12 A. You mean in the -- in the -- in the blendstock?</p> <p>13 Q. Right, from your inventory. Did you ever</p> <p>14 test -- depending on where the MTBE came from, just like</p> <p>15 the naphtha feedstock, did it vary much?</p> <p>16 A. No. No. No.</p> <p>17 Q. Do you know where the MTBE blendstock in</p> <p>18 inventory came from?</p> <p>19 A. Well, I remember that we -- sometimes we got</p> <p>20 MTBE from Argo Chemical, and there was a plant in one of</p> <p>21 our facilities in Sweeny that produced MTBE, and</p> <p>22 probably more, but I can't remember right now.</p> <p>23 Q. Do you remember getting any from Hess Oil?</p> <p>24 A. Hess Oil? No, I don't remember. I don't</p>	<p style="text-align: right;">Page 40</p> <p>1 <u>Q. From 1982 until 2002, you essentially were the</u></p> <p>2 <u>chef; right?</u></p> <p>3 <u>A. That's correct.</u></p> <p>4 <u>Q. During that period of time, did you have those</u></p> <p>5 <u>three choices to use to yield up the octane, that is,</u></p> <p>6 <u>toluene, the mixed xylenes, and the MTBE?</u></p> <p>7 <u>A. That's correct.</u></p> <p>8 Q. Is there any years in that 20-year period where</p> <p>9 you didn't have any of those three available to you?</p> <p>10 A. There were times where we -- we didn't have one</p> <p>11 or the other, but I can't remember exactly what -- how</p> <p>12 much times, but there were times that MTBE was not</p> <p>13 available and we used toluene and -- and so on.</p> <p>14 Q. When you say "times," do you mean a matter of</p> <p>15 weeks, a matter of months, or --</p> <p>16 A. Matter of months, probably, yes.</p> <p>17 Q. So when MTBE was unavailable for you to pick</p> <p>18 from inventory, then you would go to toluene?</p> <p>19 MS. FARLEY: Objection to form.</p> <p>20 A. That's correct.</p> <p>21 Q. I think it was your testimony that someone</p> <p>22 other than yourself would be responsible for the</p> <p>23 inventory of the ingredients that you used in your</p> <p>24 recipes, though; is that correct?</p>
<p style="text-align: right;">Page 39</p> <p>1 remember.</p> <p>2 Q. Did you ever, you personally, ever get the MSDS</p> <p>3 sheets that came with -- that were supposed to come with</p> <p>4 the product MTBE?</p> <p>5 A. I can't remember exactly if I had that in my</p> <p>6 hand.</p> <p>7 Q. So it's your testimony; correct, that you don't</p> <p>8 exactly remember when Core started producing gasoline?</p> <p>9 A. That's correct.</p> <p>10 Q. When you became a blender in 1982, were they</p> <p>11 already producing gasoline?</p> <p>12 A. That's correct.</p> <p>13 Q. And you said that you had talked to this</p> <p>14 gentleman and he had started to show you already how to</p> <p>15 do it; correct?</p> <p>16 A. That's correct.</p> <p>17 <u>Q. Before 1982 when you become blender and he was</u></p> <p>18 <u>showing you the ropes, do you remember what they used to</u></p> <p>19 <u>yield up the octane?</u></p> <p>20 <u>A. Toluene, mixed xylenes.</u></p> <p>21 Q. Do you remember if they used MTBE?</p> <p>22 A. No.</p> <p>23 Q. Do you remember when they started?</p> <p>24 A. I don't remember exactly when they started.</p>	<p style="text-align: right;">Page 41</p> <p>1 A. That's correct.</p> <p>2 Q. Do you remember any time when you were working</p> <p>3 there in the '82 to 2002 period where -- where the plant</p> <p>4 for one reason or another just shut down, or was the</p> <p>5 work steady?</p> <p>6 A. Yes, there were a few shutdowns. Shutdowns for</p> <p>7 maintenance, for example.</p> <p>8 Q. Well, yeah, okay, and they're called</p> <p>9 turnarounds; right?</p> <p>10 A. Turnarounds, yes.</p> <p>11 Q. Other than turnarounds, do you remember any</p> <p>12 others?</p> <p>13 A. No, I don't remember.</p> <p>14 Q. So it was essentially pretty steady work for 20</p> <p>15 years?</p> <p>16 A. More or less, yes.</p> <p>17 Q. Did you ever have much to do with filing any</p> <p>18 reports with EPA?</p> <p>19 A. Yes, there was a time that I saw some reports</p> <p>20 to EPA, yes.</p> <p>21 Q. Well, could you describe whether you had any</p> <p>22 personal responsibility with regard to those reports?</p> <p>23 A. No, not really, because my only concern was to</p> <p>24 have the finished gasoline right on specs, and somebody</p>

Freddy Flores

Page 86	Page 88
<p>1 Q. So when ships came with loads of MTBE to be 2 delivered to the Core for use in inventory, was that 3 MTBE all put in Tank 730? 4 A. Yes, sir. 5 Q. And we saw, for example, that one shipment 6 came, it was marked Hess Oil, and another -- and you 7 said -- you mentioned Argo and you mentioned Sweeny. 8 Were they segregated at all as to MTBE products, or was 9 it all mixed in 730? 10 A. It was all -- all, yes, put into Tank 730. 11 MR. DEMA: Sir, I thank you for your patience 12 with me today, and it was fun going back with you to 13 memory lane. I will pass the witness. 14 CROSS-EXAMINATION 15 BY MS. FARLEY: 16 Q. Mr. Flores, I just have a few questions about 17 some of the things that you and Mr. Dema discussed 18 earlier. 19 Mr. Dema said something or asked a question 20 something like, when MTBE was not available, then you 21 would go to toluene, and I believe your response was, 22 "that's correct." 23 <u>What I want to ask you in relation to that is,</u> 24 <u>is the only reason that you would use toluene as an</u></p>	<p>1 wasn't like that. 2 Q. Based on your recollection, you're sure it 3 wasn't blended into all batches; is that -- 4 A. Yes. I was -- I was the blender, and I'm sure 5 that I didn't that -- I didn't do that. That every 6 batch doesn't contain MTBE, no. 7 Q. And I want to go back to Flores Exhibit 8 as 8 well, which I believe is a blending ticket for -- or 9 it's a batch properties report, and it refers to Tank 10 120; right? 11 A. Uh-huh. 12 Q. And it says Shore Tank 120 on there; right? 13 A. Right. 14 Q. What I want to clarify is, from Shore Tank 120, 15 was the gasoline transferred to another tank, or was it 16 loaded directly onto a truck or barge? 17 A. We used to transfer to a smaller tank for the 18 truck loading area and to load barges out of it. 19 Q. So the barges were loaded directly from 120? 20 A. That's correct. 21 Q. And for truck sales, the gasoline was 22 transferred from 120 to another tank before it was 23 loaded onto the truck? 24 A. That's correct.</p>
Page 87	Page 89
<p>1 <u>octane enhancer because MTBE was not available?</u> 2 <u>A. No, no, that's not correct.</u> 3 <u>Q. And if MTBE was not available, was it also</u> 4 <u>possible to use mixed xylenes as an octane enhancer?</u> 5 <u>A. Yes.</u> 6 Q. I also want to go back to Exhibit Flores 3 that 7 you and Mr. Dema discussed. If you turn the page and go 8 to the top of page 2 where you and Mr. Dema were looking 9 about the middle of the first paragraph, there's a 10 sentence with several phrases and a few references to 11 the number of barrels per day of MTBE that was used at 12 Core, and there's a phrase in there that says: "MTBE 13 was blended to all finished gasoline." 14 Do you see that phrase? 15 A. Yes, I see it. 16 Q. And I want to clarify for the record. Does 17 that mean to you, based on your experience, that MTBE 18 was blended into all batches at Core? 19 A. No, that -- that doesn't mean. That doesn't 20 mean that. 21 Q. What does it mean to you then when it says that 22 it was blended into all finished gasoline? 23 A. All finished grade gasoline, not on single -- 24 in single batches, and that's over 100 percent sure that</p>	<p>1 MS. FARLEY: Mr. Flores, those are all the 2 questions I have for you. Thank you. I pass the 3 witness. 4 MR. DANTE: I don't have anything. 5 MR. DEMA: Any on the phone? 6 Ms. SPROULL: No, I'm good. Thank you. 7 REDIRECT EXAMINATION 8 BY MR. DEMA: 9 Q. Mr. Flores, when you say that not every batch 10 of MTB -- every batch of gasoline had you blending MTBE 11 in it, are you referring to the blending ticket batches? 12 A. When you say the blending ticket batches, I 13 see, you know, a mix there that have to be clarified, 14 because -- 15 Q. Yes, because I -- 16 A. -- blending ticket is -- 17 Q. -- I have a mix in my mind that has to be 18 clarified, because I'm trying to understand the 19 difference between finished gasoline and batches of 20 gasoline. Can you explain that? If there is a 21 difference, can you explain it? 22 A. When we are talking about a batch of gasoline, 23 it means that when -- when we prepare this, this 24 certification, batch property report.</p>

FILED UNDER SEAL

Juan Emilio Perez-Ortiz

Page 1

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF NEW YORK

IN RE: METHYL TERTIARY)	MASTER FILE
BUTYL ETHER ("MTBE))	NO. 1:00-1898
PRODUCTS)	M21-88
LIABILITY LITIGATION)	MDL 1358(SAS)
)	
)	
)	
COMMONWEALTH OF PUERTO)	
RICO, ET AL.)	
PLAINTIFF,)	CASE NO. 07-CIV-10470
)	(SAS)
VS.)	
)	
SHELL OIL CO., ET AL.,)	
DEFENDANTS.)	

The deposition of:

Juan Emilio Pérez-Ortiz, was held at the
law offices of Pietrantonio, Méndez, Alvarez, LLC,
Popular Center, 208 Ponce de León Avenue, 19th Floor,
San Juan, PR, on Wednesday, September 25, 2013, at
10:08 a.m.

Reported by Sandra A. Deschaine

Registered Professional Reporter

Certified LiveNote Reporter

Certified Realtime Administrator

Juan Emilio Perez-Ortiz

Page 34	Page 36
<p>1 If you were using 30 to 50,000 barrels per</p> <p>2 day of naphtha, how much byproduct would you have?</p> <p>3 A. Again, that would depend on the type of</p> <p>4 naphtha, and we would -- let's say directionally we would</p> <p>5 try to get a naphtha that had the highest concentration</p> <p>6 of BTX as we call it, but it would depend on what was the</p> <p>7 property of that naphtha material. So it could contain a</p> <p>8 larger volume of heavy ends, as we call it, which was the</p> <p>9 reformat, what eventually ended up being reformat or</p> <p>10 lower, so...</p> <p>11 Q. You used the term "heavy ends." Heavy ends</p> <p>12 of what? Is that the distillation curve?</p> <p>13 A. Yeah, the -- we think the -- you can call</p> <p>14 distillation curve, but --</p> <p>15 Q. What would you call it?</p> <p>16 A. You know, the hydrocarbons are considered</p> <p>17 light, heavy, depending on their molecule weight, but</p> <p>18 whatever. Heavy ends would be material heavier or a</p> <p>19 higher boiling range than the BTX, the benzene,</p> <p>20 toluenes, xylenes, if you want to describe it that way.</p> <p>21 Q. I've seen documents and there's been</p> <p>22 testimony so far that showed that the byproduct was</p> <p>23 generally 15,000 barrels per day, but I've also seen</p> <p>24 documents that suggest that the byproduct and the</p>	<p>1 Q. But it's consistent with your understanding</p> <p>2 that you could have 15,000 barrels per day on up to 22,</p> <p>3 28,000 barrels per day --</p> <p>4 MR. DILLARD: Objection to the</p> <p>5 form.</p> <p>6 BY MR. PETIT:</p> <p>7 Q. -- of gasoline manufactured at the Core</p> <p>8 facility?</p> <p>9 A. I will say that's on the high side.</p> <p>10 Q. 28?</p> <p>11 A. Yes.</p> <p>12 Q. And from 1982 until 2000, was Core selling</p> <p>13 toluene?</p> <p>14 A. We could have sold, but it was not typical to</p> <p>15 sell toluene.</p> <p>16 Q. Was it typically put into the gasoline blend</p> <p>17 pool?</p> <p>18 A. That would depend on a lot of factors. It</p> <p>19 would depend on the plant constraints at the time. It</p> <p>20 will depend mainly on the economics, whether it was</p> <p>21 better to use it as a chemical fixed up, or for the other</p> <p>22 processes, or to put it into gasoline.</p> <p>23 Q. What was toluene used for in gasoline?</p> <p>24 A. It's a component that mostly provides octane</p>
Page 35	Page 37
<p>1 gasoline could be as high as 28,000 barrels per day.</p> <p>2 Is that consistent with your understanding?</p> <p>3 A. This is not reformat, because there are</p> <p>4 other byproducts aside from reformat. As part of the</p> <p>5 whole conversion process, there was also various streams</p> <p>6 that would come out that would eventually end up in the</p> <p>7 gasoline pool; for example, butane, pentane, something we</p> <p>8 used to call light raffinate, which was the unconverted</p> <p>9 section of the naphtha. That total would vary. It would</p> <p>10 go from anywhere from 10,000 to 20,000 like you're</p> <p>11 saying. I don't know. 25,000 seems a little bit on the</p> <p>12 high side, but it could be depending on the --</p> <p>13 Q. And so I probably said that wrong because</p> <p>14 you're going to have a lower volume -- relatively lower</p> <p>15 volume of motor fuel reformat than you would if</p> <p>16 obviously you combined it with the other components of</p> <p>17 gasoline. So the volume of manufactured gasoline per day</p> <p>18 is obviously going to be larger than the volume of motor</p> <p>19 fuel reformat byproduct, correct?</p> <p>20 A. On the average, yes, yes.</p> <p>21 Q. Because you're adding other stuff to it;</p> <p>22 you're adding other volumes?</p> <p>23 A. You're combining other streams into it, other</p> <p>24 streams.</p>	<p>1 <u>to a pool, to the gasoline blend.</u></p> <p>2 Q. Any other reasons that you would put toluene</p> <p>3 in gasoline?</p> <p>4 A. There's really no reason why you, you know,</p> <p>5 why you put it. It's just one option that you have to</p> <p>6 put it in gasoline. I mean, it would have an impact on</p> <p>7 octane; it would have an impact on the other properties,</p> <p>8 like the distillation or the RVP, Reid vapor pressure.</p> <p>9 Q. Would it have any other impact on the</p> <p>10 gasoline, on the properties, gasoline properties?</p> <p>11 A. Well, you know, there is several different</p> <p>12 properties and each component of the gasoline has</p> <p>13 different values -- properties that would impact,</p> <p>14 definitely, yes. But those are the main market type of</p> <p>15 specifications, you know.</p> <p>16 Q. Is it fair to say that Core's goal was to use</p> <p>17 the toluene -- let me start over.</p> <p>18 Is it fair to say that Core wanted to use</p> <p>19 toluene to convert it into cyclohexane for sale?</p> <p>20 A. Yes, you could say that's one option we had</p> <p>21 which was performed, was used a lot.</p> <p>22 Q. And Core's primary business during that time</p> <p>23 was the sale of cyclohexane?</p> <p>24 MR. DILLARD: What time?</p>

Juan Emilio Perez-Ortiz

<p style="text-align: right;">Page 54</p> <p>1 "Phillips' incentive to resell MTBE is to allow higher 2 utilization of their ship." 3 Sir, are you familiar at all with Phillips 4 transportation capabilities? 5 A. Phillip Petroleum you mean? 6 Q. Yes. 7 MR. DILLARD: Object to the form. 8 THE WITNESS: No. 9 BY MR. PETIT: 10 Q. Was that a no? 11 A. No. 12 Q. Do you know how Phillips would ship 13 feedstocks or blendstocks, or anything, supplies that 14 Core received from Phillips; do you know how those 15 products were shipped? 16 A. I understand that Phillips had what you call 17 a charter or a contract with a ship company, with a ship 18 to use it to bring materials in and out of Core. 19 Q. And that's what I'm referring to. 20 You understand that there was a charter 21 agreement? 22 A. Oh, yes. 23 Q. Do you know who that charter agreement was 24 with?</p>	<p style="text-align: right;">Page 56</p> <p>1 Q. Let's start with this. What octane enhancers 2 were used at Core from 1982 until 2000 in the 3 manufacturing of gasoline? 4 A. What blendstocks you mean were used? We use 5 MTBE. 6 Q. As an octane enhancer. 7 A. I have problem with the phrase "octane 8 enhancer" because -- I wouldn't look at it as an octane 9 enhancer. It was one more blendstock to use, that it 10 contributed to the octane or it contributed to the whole 11 gasoline pool as well, so... 12 Q. When you say "contributed to the gasoline 13 pool," are you just referring to the fact that it 14 contributed to the gasoline pool and increased its 15 volume, the volume of gasoline that could then be sold? 16 A. It was just one blendstock that could be 17 used, let's put it that way. It was a high-octane 18 blendstock as well as, as I say, some other blendstock 19 that could be available from another corporation or 20 company, that could be high-end octane too, not 21 necessarily MTBE mixtures. 22 Like I say, our reformat, for example, 23 there were times we could sell our reformat for some 24 resource and that would be sold as a high-octane</p>
<p style="text-align: right;">Page 55</p> <p>1 A. Which company? 2 Q. Yes. 3 A. No. 4 Q. Was there some charter agreement that 5 Phillips had with a company to utilize their ship for the 6 whole period of time from, let's say, 1982 until 2000? 7 A. I don't think so. That's a long period of 8 time. I don't know. 9 You mean a short-term agreement that would 10 cover over that period of time? 11 Q. Or multiple. 12 A. I cannot say, but I would say that they would 13 look at that on a periodical basis. 14 <u>Q. A couple of times in this deposition you've</u> 15 <u>testified that MTBE was an option that was analyzed to be</u> 16 <u>used in gasoline as an octane enhancer.</u> 17 <u>What other options were looked at? Do you</u> 18 <u>know?</u> 19 <u>A. To use in gasoline to boost the octane.</u> 20 <u>There was the option of toluene, mixed xylenes. There</u> 21 <u>was always the option of blendstock that could be</u> 22 <u>available from different sources. That doesn't</u> 23 <u>necessarily have to be MTBE. It could be so-called a</u> 24 <u>blendstock.</u></p>	<p style="text-align: right;">Page 57</p> <p>1 blendstock, because it was that, high-octane blendstock. 2 Q. So Core would sell a high-octane reformat? 3 A. Not typically but it could be an option. 4 Q. When Core was looking at MTBE as a blendstock 5 for its gasoline pool, why was it looking at MTBE in the 6 first place? What was the need? How did the gasoline 7 pool benefit from the use of MTBE? 8 A. Again, I look at it as an overall economic 9 decision. You know, we would use mostly the -- or we 10 would use the optimization program and into that program 11 they would fit information about what's available, the 12 price of components available, the price of gasoline to 13 be sold, the volume that could be sold and all that, and 14 the model will tell me -- I'm using the word "model" for 15 the LP software pack. The model will operate and tell 16 you, you know, this is the most optimum way to put gaso- 17 line together to make more money, let's put it that way. 18 That's one thing from -- that information 19 would be used to plan, because you cannot transform what 20 the LP will tell you exactly into what's happening 21 because those were average numbers and were directional 22 type of information, you know, we tried to -- but that's 23 the way we look at octane. 24 Yes, octane -- I mean MTBE. MTBE is a high</p>

Exhibit 6

From: Bullock, John K SIPC-OSP
Sent: Monday, December 24, 2001 12:12:04 PM
To: David Beer; David Lewis; Herman Colon
Subject: FW: MTBE policy review

Attachments: Post SEOP 3 pager on 2001Policy Review.ZIP

Gentlemen,

Herewith the latest on MTBE monitoring. We will clearly need to take some action in our high-risk areas (Argentina, Puerto Rico, Bahamas) for the purpose of monitoring in 2002. This presents (yet another) high priority item for David Lewis to agree and action plan with the businesses (Retail and MSD) in the first quarter of 2002.

John

John Bullock
VP - Strategy & Portfolio South Zone
Shell International Petroleum Company Limited
Shell Centre, London SE1 7NA, United Kingdom

Tel: +44 (0)20 7934 4346**Email:** John.Bullock@shell.com
Internet: <http://www.shell.com>

-----Original Message-----

From: Vesey, Andrew AC SIPC-OXS/1
Sent: 18 December 2001 17:04
To: Bullock, John K SIPC-OSP
Cc: Clarke-Sturman, Tony A SIPC-OMF/4
Subject: MTBE policy review

John,

further to the telephone conversation with you and David I thought I'd let you know that we have had some input from SEOP about the high number of high risk sites (and hence the potential cost of monitoring them). we have agreed with SEOP that 20 sites (the minimum recommended by Global Solutions) to be selected out of the high risk group and investigated. The purpose of this is so that we can then really establish the costs and methodology etc. SEOP will then set up the plan to investigate the high risk sites. We are recommending a similar approach in South and East. Attached is the latest version with the changes highlighted in blue.

Andrew Vesey
Oil Products Business Strategy Group
Shell International Petroleum Company Limited
Shell Centre, London SE1 7NA, United Kingdom

Tel: +44 (0)207 934 3633**Email:** Andrew.Vesey@Shell.com
Internet: <http://www.shell.com>



SH-PR-SIPC-ESI_008624

MTBE Policy Review- December 2001(no attachments)

Background

The Product Liability risk for OP, of which MTBE contamination is a significant part, is ranked as a greater than medium likelihood with a potential impact, on reported earnings, of over US\$ 100 mln (Fig 1). The current OP Policy for handling product that contains MTBE was initially endorsed in July 1999. The implementation plan had 3 main legs

1. An awareness programme to highlight to operating units the risks of handling gasoline containing MTBE and put in place actions to mitigate future costs.
2. To collect data, initially on a country basis and then, in countries assessed as potentially high risk, at a site specific level
 - The usage of MTBE
 - Geology of the surrounding area, particularly the proximity of potable groundwater
3. To be publicly responsive to stake-holder's concerns and to lobby, mainly through Europia, for industry-wide actions to identify suitable alternatives to MTBE

Since the last review of the policy, in September 2000, there have been a number of developments that need to be taken into account-

- Shell Oil Products expect the use of MTBE in gasoline to be substantially phased out by 2005.
- It is expected that the use of MTBE will be curtailed in Japan, Thailand, Pakistan and some states in Australia.
- Despite Denmark requesting the industry to eliminate MTBE from ULG 95 and reduce the sales of ULG98, the EU Commission have concluded that there is not a case for a EU wide ban on MTBE. In the Commission's view this is an issue for member states to consider.
- The EU may make the use of bio fuel components mandatory by 2006 and have classified ETBE manufactured from bio-ethanol as a bio-fuel component (ETBE has the same contamination issues as MTBE).
- Despite strenuous efforts, the other members of Europia are unwilling to commit to industry wide action to find alternatives to MTBE.
- Generally, although we have not introduced MTBE into areas that are considered to be MTBE free, as a result of the Choice programme our use of MTBE has increased. If the JV with DEA gains EU regulatory approval our production of MTBE will increase.
- Some JV partners, for example SABIC, consider our position to be too aggressive. SABIC (Saudi Arabian Basic Industries Consortium) is the world's largest producers of MTBE and, via SADAF, jointly operate a MTBE manufacturing plant with Shell Chemicals.

Outcome of the Review

It is concluded that-

- In the next few years it is unlikely that there will be either industry wide action to find alternatives to MTBE or a wide spread ban on the use of MTBE by the regulators
- Studies have indicated that approx. 30% of retail sites leak and that the potential cost of remediation of MTBE contamination is very high.

- Using the Group Risk Assessment Matrix the current risk of MTBE contamination from for example, leaking tanks is assessed as D4. Actions are required to reduce this risk. (Figure 2).
- Global Solutions have, based on the information supplied by OpCo's, estimated the costs of remediation at between US\$ 700 and 1400 mln in MOD. If remediation is phased over 10 years this is equivalent to an NPV of US\$ 350 – 700 mln. The large range is due to the uncertainty about the number of sites that will need remediation and the variance in remediation costs depending on the standard of remediation required. Of this approx. 55% of the costs are in SEOP and 75% are in Retail with the balance mainly at Distribution depots.
- Unilateral action by Shell to stop producing MTBE and/or stop using MTBE is very costly (a NPV loss of at least US\$ 350 mln for Shell Chemicals, and probably a similar amount for Oil Products). However, due to the product swap arrangements such action would not significantly reduce the amount of product that contains MTBE being sold in our retail network. Such action would also have a major impact on our ability to product Optimax grades and effectively would bar us from using ETBE in any bio-fuels initiative. Although bio-ethanol would still be an option its high vapour pressure, compared to ETBE, would put us at a competitive disadvantage.
- Shell OpCo's need to have procedures for monitoring for MTBE contamination and to be capable of handling gasoline that contains MTBE in a responsible manner. Whilst the costs of remediation could be reduced if bio-techniques are successfully developed any delay in taking action now to carry out remediation where there have been leaks, or to prevent further contamination, could lead to demands for stringent clean up standards which would significantly escalate the cost of remediation.
- It is recommended to use a screening matrix (attached) to identify locations with the highest risk potential and then to put in place investigations for and monitoring of contamination. The matrix has been developed so that, with knowledge of the % of MTBE in the gasoline and the site geology e.g. porosity of rock (chalk or sandstone) proximity to potable aquifer, risk assessments can be made sites can be prioritised for investigation.
- This policy will allow Zone Managements to authorise the introduction of MTBE into previously virgin areas on a case by case basis and **providing that full site-specific risk assessments are carried out prior to it introduction. Adequate measures need to be taken to control the risks.**
- At present little, if any, information is supplied to our customers on the environmental aspects of storing gasoline that contains MTBE. In the EU risk assessment the suggestion is made that Oil Companies should vet the suitability of customers facilities to handle gasolines that contain MTBE. Some customers could claim that, in the absence of such information or vetting, we are responsible for their remediation costs. Input to this review will include an assessment of the legal obligations of current contracts. A team of Legal, Retail (for DoDo sites), Commercial and MSD will be led by OMF to assess how best to manage this aspect and will report back in Q1 2002.

Implementation

- For Distribution, SEOP MSD and Global Solutions have applied the screening matrix to Distribution Depots in the high-risk countries. Of the 100+ depots that handle gasoline at least 2 sites have been identified that are potentially high risk,

of these 1 is situated within 1 km of a drinking water abstraction system. These sites are scheduled for immediate investigation. This approach needs to be extended to the countries in East and South Zone that have been identified as high risk.

- For Retail, all Zones need to use the screening matrix to identify the high-risk sites in high-risk countries. Initially 20 sites in each Zone, at an estimated cost of \$ 300,000 per Zone, should be investigated in the next 3-6 months. This is an essential step to understanding both the levels of contamination, the steps to be taken to control the risk, and the development of best practice in investigation techniques. Following a review of the data at country and Zone HSE meetings, a plan to investigate other high-risk sites will then be developed. As a minimum it is expected retail sites that are within 1 km of a water abstraction well will be investigated. (Timeline attached)
- If contamination is found containment measures will need to be put in place and/or remediation may be required. The actions could range from repairing leaking tanks to ceasing supply that site with gasoline grades that contains MTBE. (Attached MTBE Risk Management).

Summary of Recommendations

- In essence, the Oil Products Policy and Strategy on MTBE are unchanged and we should continue to advocate, via Europaia and other industry forums, the seriousness of the issue and desirability of industry wide action.
- However, in the absence of a concerted industry effort to find solutions Shell needs to urgently pursue a process of site-specific investigations and corrective actions and to imbed the process in the normal HSE management system.
- High-risk sites (both Distribution and Retail) need to be identified, monitoring put in place and, if contamination is found, remediation may be required as well as corrective actions taken to prevent further contamination. Such actions could range from upgrading the engineering standards to restricting the quantity of MTBE in the gasoline, or ceasing to sell grades containing MTBE.
- Zones Management need to make available finances and resources for the identification and monitoring process and are requested to provide a summary of their action plan and then report progress quarterly to the MTBE Team. For igh risk countries progress, on implementing this policy, will be included as part of the ground water contamination section of the annual HSE letter for 2002.
- With a view to reducing remediation costs, OG should propose to the Innovation council a development plan for bio remediation techniques.
- Our public position on the MTBE will be modified to reflect this review.

OPE is requested to endorse this policy

Ricardo L. Casas-Lomba

Page 1

UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF NEW YORK

-----x
IN RE: METHYL TERTIARY MASTER FILE
BUTYL ETHER ("MTBE") NO. 1:00-1898
LIABILITY LITIGATION M21-88
PRODUCTS MDL 1358 (SAS)
-----x

COMMONWEALTH OF PUERTO
RICO, ET AL.,
 Plaintiffs,

vs.

CASE NO.
07-CIV-10470
SHELL OIL CO., ET AL.,, (SAS)

Defendants.
-----x

The video deposition of:

RICARDO L. CASAS-LOMBA,

Was held at the law offices of O'Neill & Borges,
250 Muñoz Rivera Avenue, 800 American International
Plaza, San Juan, Puerto Rico, on Tuesday, May 6,
2014, at 10:07 a.m.

Reported by: Marty E. McArver, CA-CSR, GA-CCR, FPR

GOLKOW TECHNOLOGIES, INC.
877.370.3377 ph|917.591.5672 fax
deps@golkow.com

Ricardo L. Casas-Lomba

<p style="text-align: right;">Page 38</p> <p>1 question?</p> <p>2 MS. O'REILLY: Sure.</p> <p>3 THE DEPONENT: Covered all the --</p> <p>4 BY MS. O'REILLY:</p> <p>5 Q. We talked about contracts, and we'll look</p> <p>6 at some of those. And you mentioned the table that</p> <p>7 summarized certificates of analysis.</p> <p>8 Is there anything else that you're relying on</p> <p>9 for your opinions concerning the presence or absence</p> <p>10 of MTBE in gasoline distributed by Esso?</p> <p>11 A. If I recall correctly, one of our dealer</p> <p>12 training manuals, the material safety data sheet,</p> <p>13 for example, has a reference to MTBE, which is also</p> <p>14 something I have reviewed, that we were sharing with</p> <p>15 the dealers and station employees to make them aware</p> <p>16 of the content.</p> <p>17 And let's see what other documents --</p> <p>18 And, again, some of the points such as the --</p> <p>19 where we talk about the distribution and the industry</p> <p>20 practice, I did review our station manuals, which</p> <p>21 showed -- refreshed me on the practices that we had</p> <p>22 with our dealers.</p> <p>23 Q. Going back to the MSDS, you mentioned that</p> <p>24 it referred to MTBE. Correct?</p>	<p style="text-align: right;">Page 40</p> <p>1 Q. Well, let me ask it this way. When I ask</p> <p>2 you what documents you're relying on, how does the MSDS</p> <p>3 referring to MTBE assist you in your opinion about the</p> <p>4 presence or absence of MTBE in gasoline distributed by</p> <p>5 Esso?</p> <p>6 A. Because it did confirm that we -- while</p> <p>7 we were doing our training with the dealers and station</p> <p>8 employees, we were making them aware, amongst the other</p> <p>9 items that we were sharing with them, of the presence of</p> <p>10 various components of gasoline, you know, MTBE being one</p> <p>11 of them.</p> <p>12 Q. So would that mean that MTBE was present in</p> <p>13 the gasoline?</p> <p>14 A. It might have been present in some of the</p> <p>15 shipments. So they were made aware that it might have</p> <p>16 been there.</p> <p>17 Q. Now, you mentioned 1992[sic]; you weren't</p> <p>18 aware or didn't see anything about MTBE being present</p> <p>19 prior to 1992[sic]. Do you know if MTBE was analyzed</p> <p>20 for in gasoline received by Esso prior to 1992?</p> <p>21 MR. BOLLAR: Objection to form.</p> <p>22 Mischaracterizes testimony.</p> <p>23 THE DEPONENT: I don't recall if</p> <p>24 it was part of the analysis or not.</p>
<p style="text-align: right;">Page 39</p> <p>1 A. I seem to recall it did, yes, that it had --</p> <p>2 showed the percentage or the fact that there was MTBE.</p> <p>3 I don't -- Not necessarily a percentage, but the fact</p> <p>4 that MTBE was one of the components.</p> <p>5 Q. And why did Esso Puerto Rico add MTBE to</p> <p>6 the MSDS?</p> <p>7 A. The MSDS, you know, is a document that we --</p> <p>8 many times we would get from the refiner or we would</p> <p>9 produce ourselves, which would show, you know, the</p> <p>10 various components of the gasoline that would be</p> <p>11 relevant to communicate.</p> <p>12 Q. Now, was the MSDS that you're referring</p> <p>13 to prepared by Esso or one of its suppliers?</p> <p>14 A. My recollection is that it's part of the</p> <p>15 manual. So I don't know that it's the whole sheet,</p> <p>16 but just probably an extract of that sheet. So I</p> <p>17 don't -- I'm not referring to the full MSDS.</p> <p>18 Q. Okay. And why would --</p> <p>19 The MSDS that you're referring to, why would</p> <p>20 that include MTBE?</p> <p>21 A. Well, you would have to ask the technical</p> <p>22 experts that prepared those sheets. I mean, you know,</p> <p>23 I'm not an expert in preparation of material safety</p> <p>24 data sheets.</p>	<p style="text-align: right;">Page 41</p> <p>1 BY MS. O'REILLY:</p> <p>2 Q. So it could have been present but wasn't</p> <p>3 analyzed for? You don't know?</p> <p>4 A. Well, the information I've reviewed, as I</p> <p>5 was stating earlier, when we were getting product from</p> <p>6 <u>CORCO. CORCO was not using MTBE as an additive at that</u></p> <p>7 <u>time. They were -- They had the ability to refine the</u></p> <p>8 <u>quality of product that was required, and so it was</u></p> <p>9 <u>not used.</u></p> <p>10 Q. And your testimony that CORCO wasn't</p> <p>11 using MTBE, is that based on something other than</p> <p>12 the certificates of analysis?</p> <p>13 A. Just my recollection of how CORCO worked</p> <p>14 at that time and --</p> <p>15 Q. Did you visit the CORCO facility?</p> <p>16 A. I went to the CORCO facility many times</p> <p>17 at that time, during that time period.</p> <p>18 Q. And who did you meet with at the CORCO</p> <p>19 facility?</p> <p>20 A. Well, we were -- At that time period I was</p> <p>21 not, let's say, directly involved with the gasoline;</p> <p>22 but we were involved with some of their folks from some</p> <p>23 of the labs, actually, that were doing some testing for</p> <p>24 products that we did testing. And CORCO had some labs</p>

Ricardo L. Casas-Lomba

Page 42	Page 44
<p>1 and facilities that we used. And there was a terminal</p> <p>2 we had that, you know, we would load products there.</p> <p>3 So it was just a variety of things that -- where we</p> <p>4 were involved with that over that time period.</p> <p>5 <u>Q. How did you specifically become aware</u></p> <p>6 <u>that CORCO was not using MTBE to manufacture gasoline</u></p> <p>7 <u>distributed in Puerto Rico?</u></p> <p>8 <u>A. In the time period of the '80s, as I have,</u></p> <p>9 <u>I think, testified before and been deposed before, I was</u></p> <p>10 <u>working for the chemical company. And we were -- You</u></p> <p>11 <u>know, we were aware of some of the products being sold.</u></p> <p>12 <u>And our trader and others that were looking</u></p> <p>13 <u>for -- you know, selling toluene and other blend stocks</u></p> <p>14 <u>would, you know, be in contact with the different</u></p> <p>15 <u>refineries in the area. And so we know CORCO was not</u></p> <p>16 <u>one of the ones needing MTBE.</u></p> <p>17 <u>Q. They were able to meet the 93 octane without</u></p> <p>18 <u>the use of MTBE?</u></p> <p>19 <u>A. CORCO was not producing 93 octane at that</u></p> <p>20 <u>time. It was -- If my recollection is correct, it was</u></p> <p>21 <u>87 and maybe 91 octane.</u></p> <p>22 Q. So, to your understanding, CORCO was able</p> <p>23 to produce gasoline with 87 and 91 octane without the</p> <p>24 use of MTBE?</p>	<p>1 Q. And they're located in the south, correct?</p> <p>2 A. That's correct.</p> <p>3 Q. But they utilized the pipeline to supply</p> <p>4 you in the north, correct?</p> <p>5 A. That pipeline was used. (Deponent moves</p> <p>6 head up and down.)</p> <p>7 Q. Okay. And after 1982 how much did CORCO</p> <p>8 supply Esso?</p> <p>9 A. I mean, I don't recall the percentages</p> <p>10 of how much they supplied or did not supply.</p> <p>11 Q. Was it much smaller after 1982?</p> <p>12 A. Well, after they shut down their operations,</p> <p>13 it was smaller, yes.</p> <p>14 Q. And --</p> <p>15 MR. BOLLAR: Counselor, I was going</p> <p>16 to ask for a break, if you don't mind.</p> <p>17 MS. O'REILLY: Okay. Let me --</p> <p>18 Just two minutes. Let me finish this.</p> <p>19 MR. BOLLAR: Sure, sure.</p> <p>20 BY MS. O'REILLY:</p> <p>21 Q. When is your understanding that CORCO shut</p> <p>22 down their operations?</p> <p>23 A. My recollection is that they were starting</p> <p>24 to shut down in the kind of late '70s, early '80s. I</p>
Page 43	Page 45
<p>1 A. Correct, perhaps using toluene or other</p> <p>2 additives if they needed to.</p> <p>3 Q. What percentage of gasoline --</p> <p>4 Well, let me ask you this. What's your</p> <p>5 understanding of the time period when Esso was supplied</p> <p>6 by CORCO?</p> <p>7 A. I tend to recall it's through about 1982.</p> <p>8 But we might have had some supply after that, because</p> <p>9 we had supply in the north and the south. And so CORCO,</p> <p>10 over time, might have supplied product in the south</p> <p>11 after that time period.</p> <p>12 Q. Let me make sure I -- So before --</p> <p>13 It's your understanding that your supply from</p> <p>14 CORCO ended in 1982?</p> <p>15 A. No. I guess at that time I was saying</p> <p>16 that I think they were one of our principal suppliers,</p> <p>17 because the pipeline that went across island was</p> <p>18 operating. And so we were getting more product from</p> <p>19 them than imports and other options.</p> <p>20 Q. So let me ask it -- Let me make sure I</p> <p>21 understand.</p> <p>22 So prior to 1982, CORCO supplied both north and</p> <p>23 south for Esso?</p> <p>24 A. They had the ability to do that.</p>	<p>1 have to see exactly when, but it was in that time period</p> <p>2 where they started to -- their eventual shut-down, I</p> <p>3 guess, started sort of reducing the size of their</p> <p>4 operation over time.</p> <p>5 Q. One more question. And while CORCO</p> <p>6 was supplying Esso, did Esso still import gasoline?</p> <p>7 A. I can't recall whether there were</p> <p>8 significant imports at that time period.</p> <p>9 MS. O'REILLY: All right. Your</p> <p>10 counsel has asked for a break, and we</p> <p>11 can take a break.</p> <p>12 THE DEPONENT: Thank you.</p> <p>13 MR. BOLLAR: Thank you.</p> <p>14 THE VIDEOGRAPHER: We're off the</p> <p>15 record. The time is 11:05 a.m.</p> <p>16 (A recess transpires.)</p> <p>17 THE VIDEOGRAPHER: We are back</p> <p>18 on the record. The time is 11:22.</p> <p>19 BY MS. O'REILLY:</p> <p>20 Q. After CORCO, to your understanding, who was</p> <p>21 the primary supplier to Esso Puerto Rico?</p> <p>22 A. The primary supplier, you know, has varied</p> <p>23 over time. You know, we've, over time, always had</p> <p>24 various suppliers.</p>

FILED UNDER SEAL

FILED UNDER SEAL